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THE

BRITISH FLORA:

IN TWO VOLUMES.

VOL. I.,

COMPRISING THE

PHÆNOGAMOUS OR FLOWERING PLANTS, AND THE FERNS.

BY

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AND DIRECTOR OF THE ROYAL BOTANIC GARDENS OF KEW.

The Fifth Edition,

WITH ADDITIONS AND CORRECTIONS,

AND NUMEROUS FIGURES ILLUSTRATIVE OF THE UMBELLIFEROUS PLANTS, THE COMPOSITE PLANTS, THE GRASSES, AND THE FERNS.

—— "Call the vales, and bid them hither cast
Their bells and flow'rets of a thousand hues."

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TO

ROBERT GRAHAM, M.D., F.R.S. Edin., F.L.S.

&c. &c. &c.

AND

REGIUS PROFESSOR OF BOTANY IN THE UNIVERSITY OF EDINBURGH.

My dear Sir,

Fellow-labourers as we are in the same field, occupied professionally in the same pursuit as we have long been, in Sister Universities of this country, and alike anxious for the advancement of our favourite science; — these may be considered, in themselves, sufficient reasons why I should wish to dedicate the following pages to you. But I have a still stronger inducement; namely, that I may thereby record the friendship which has, I believe, almost from the first of our acquaintance, subsisted between us, and which I fervently hope may continue during the remainder of our lives.

That this work may be found useful to learners of Botany in general, as well as to those who pursue this study under your able directions, and that your zealous endeavours to promote the interests of your Class may be rewarded by the most happy success, are amongst the sincerest wishes of,

Dear Sir,

Your faithful and affectionate Friend,

THE AUTHOR.

INTRODUCTION.

THE object which the Author proposed to himself, in preparing a new *Flora of the British Empire*, was of a twofold nature: 1stly, to provide the young Student with a description of our native plants, arranged according to the simplest method; and, 2dly, to afford to the more experienced Botanist a manual, that should be useful in the field as well as in the closet. In regard to the first object, the experience of nearly an hundred years has proved to every unprejudiced mind that no system has appeared which can be compared to that of the immortal Swede, for the *facility* with which it enables any one, hitherto unpractised in Botany, to arrive at a knowledge of the Genus and Species of a plant. The Linnæan Method is, therefore, here still preserved, as an easy introduction to a knowledge of the more important or Natural Method.

It has been the opinion of the Author, and of many of his friends, that, in most of the Floras hitherto published, however excellent in other respects, either too much or too little space has been devoted to the generic and specific descriptions and synonyms; in the one case, swelling the book to a size which entails both expense on the purchaser and difficulty in consulting the several volumes; in the other, reducing the technical characters to the shortest possible compass, so that they can scarcely be made available, except to those who are already partially acquainted with the plant under examination, or with some of its near allies. Between these extremes, the Author has attempted to steer a middle course, by giving diagnostic remarks where, and where only, they have appeared to him necessary; confining the synonyms, with few exceptions, to those of the writer who first described the plant, to a good figure, and in general a reference to a single Flora only of Great Britain; and by adopting such an arrangement of the

subject-matter as would best occupy every portion of the page, without rendering it obscure to the reader. How far his endeavours have proved successful, must be left to the experience and judgment of those for whose use the work is particularly intended. Should it be useful in advancing the cause of Botanical Science in this country, as the demand for five very large impressions, in little more than twice that number of years, leads him to believe, the end which was fondly anticipated at the commencement of the undertaking has been fully accomplished. During the progress of the labour, it occurred to the Author that he might give additional interest to the volumes by subjoining short notices of the uses and properties of, or some little historical remarks relative to, the species, the origin of the generic names, &c.; thereby recommending the pursuit of which it treats to the attention of the many, who are still apt to look upon Botany as a dry and profitless employment, a system of hard words, destitute of any real utility to mankind.

Mirbel has well remarked, that "Ceux qui proscrivent l'usage des méthodes artificielles n'en ont point saisi le véritable esprit; ceux qui ne s'attachent qu'à ces classifications arbitraires, et qui négligent l'étude des rapports naturels, ignorent la beauté et la dignité de la science;"—a maxim which it is to be wished were more generally acknowledged. For it is unfortunately too much the practice of the day for the one party, having devoted an exclusive attention to one or other of these Methods, to decry that with which he is unacquainted, or the advantages of which he has never had the good fortune to experience. The more easy the commencement of a study is made, the more votaries will be drawn to it; and though they should attain to no further knowledge of a Natural Method than what has been taught by the imperishable writings of a Linnæus and of a Smith, yet let them be assured that in plants, taken individually, and in an isolated manner, there are subjects that will give ample scope for the employment of the talents of the greatest philosophers: in the due contemplation of which they may derive both pleasure and advantage themselves, and be the means of communicating them to others. Lyonet acquired at least as much honour, and rendered as great service to mankind, by his intimate acquaintance with the anatomy and functions of the organs of a single caterpillar, as if he had spent his life

in arranging all the known insects of the world according to a new and Natural System. The Linnæan Method, as a late writer in the *Magazine of Nat. History* has well observed, is not opposed to that of Jussieu or DeCandolle, "but is rather an easy and pleasing preface or index to their more extended inquiries. Such an *Index* or *Preface* the Author has in the present edition more especially attempted to make it, where he has followed the plan so advantageously employed by Beck in his *Flora of the Middle States of N. America*, Mackay in his *Flora Hibernica*, and Koch in his *Flora Germanica*, of giving a Synoptical Table, according to the Linnæan Method, of the Classes, Orders, and Genera, referring to the place in the main body of the work where the species are described, arranged according to the Natural Method.

To those who wish for fuller information respecting the *natural affinities* of Plants, especially as concerns universal Botany, the following works may be studied with advantage: — Dr. Lindley's *Introduction to Botany*, and his *Natural System of Botany*; Mr. Arnott's *Treatise on the Natural Arrangement of Plants*, under the article "Botany," in the 5th vol. of the 7th edition of the *Encyclopædia Britannica*; and the 7th and last edition of Sir J. E. Smith's *Introduction to Botany*, where we have ourselves given the characters of all the *Natural Orders*.

The labour of compiling the Flora of a country, by a careful examination and comparison of specimens themselves, whether in a living or dried state, can only be appreciated by those who have been engaged in an employment of the same kind. The collecting of materials, indeed, in their native hills and valleys, upon the sea-shore, in the woods, and among the majestic alpine scenery with which the northern parts of our island eminently abound, generally in the society of friends of a congenial taste, or students full of ardour and enthusiasm, has been a very delightful occupation, especially when taken in conjunction with "anticipations of the pleasure we may have to bestow on kindred minds with our own, when sharing with them our discoveries and our acquisitions." And the task of describing them has, in the present instance, been considerably lightened by the valuable assistance afforded by many of the most able Botanists of our country, whose names are mentioned, as far as it was consistent with the nature of the undertaking, when

treating of the respective plants they have tended to illustrate.

The design of this work would not allow of so many stations being given for the rarer plants as could have been wished; and, indeed, the Author has been rather anxious to indicate the range of the species, than the precise spot where any particular one is found. The admirable *Botanist's Guide* of Messrs. Turner and Dillwyn, the interesting *Remarks of the Geographical Distribution of British Plants* and the New *Botanist's Guide*, by H. C. Watson, Esq., Mr. J. T. Mackay's valuable *Flora Hibernica*, and the various local Floras which are now happily become exceedingly numerous, may, for information on this head, be consulted with great advantage.

Mr. J. E. Bowman has, with his accustomed good judgment, suggested the propriety of erasing from the British Flora such plants as *Bufonia tenuifolia*, *Swertia perennis*, *Gentiana acaulis*, *Stipa pennata*, and some others universally acknowledged to be neither indigenous to the British Isles nor naturalised amongst us; and my first impression was to adopt this suggestion. But, upon further consideration, I retain them, out of respect to the memory of Sir Jas. Smith, who saw reason to consider them British, and who introduced them as such, not only into his *Flora Britannica*, but into *English Botany* and the *English Flora;* works of so high a character that they may well be considered as standard authority for such plants as were deemed indigenous to Britain at the period of their publication. I have, nevertheless, thought proper to place an asterisk (*) against the names not only of such species as no longer exist in the given localities, but also against others which have become naturalised through the agency of man. I cannot, however, consent to admit every plant that recent research has detected in uncultivated ground, merely because *Œnothera biennis* and *Datura Stramonium* have, without sufficient consideration, found a place in our Flora. The *Martagon Lily* and the *American Touch-me-Not* can have no claim to be considered British plants.

The *Catalogue of British Plants* by the Botanical Society of Edinburgh, 2d ed. (*Ed. Cat.*), has invariably been quoted as a work in which especial pains appear to have been taken to form a complete list of the native flowering plants and ferns of Great Britain. It is to be regretted that the authority upon

which several additional species have been introduced has not been mentioned, and which seem scarcely entitled to rank as species. They may have been elsewhere noticed in some of the many journals of the day which have not fallen under our notice.

It may be well to remark here, that the figures which follow the season of flowering of the plants in the descriptive pages, viz., ☉, ♂, ♃, and ♄, signify:

☉ (The Sun), implying that the plant is of annual duration, because the earth requires a year in performing a revolution round the sun.

♂ (Mars), a biennial plant; because that planet is two years in performing a similar revolution.

♃ (Jupiter), a perennial plant or root; because of the great length of time, 4332 days, required by that planet for such a revolution.

♄ (Saturn), a shrub or tree, which, living for a great number of years, is represented by a planet requiring nearly 30 years to revolve round the sun.

The present volume terminates with the *Ferns*. A second (which also forms the fifth of Sir J. E. Smith's *English Flora*), including the rest of the Class CRYPTOGAMIA, is published, and completes the Flora of the British dominions.

Royal Botanic Gardens, Kew,
Oct. 1. 1842.

CLASSES AND ORDERS

OF

THE LINNÆAN SYSTEM OF BOTANY.

Flowers perfect, each with Stamens and Pistils.

Class.	
1. MONANDRIA .	1 *Stamen* in each flower.
2. DIANDRIA .	2 *Stamens* ——
3. TRIANDRIA .	3 —— ——
4. TETRANDRIA .	4 —— —— equal in height.
5. PENTANDRIA .	5 —— ——
6. HEXANDRIA .	6 —— —— equal in height.
7. HEPTANDRIA .	7 —— ——
8. OCTANDRIA .	8 —— ——
9. ENNEANDRIA .	9 —— ——
10. DECANDRIA .	10 —— ——
11. DODECANDRIA .	from 12 to 19.
12. ICOSANDRIA .	20 or more, on the *calyx*.
13. POLYANDRIA .	20 or more, on the *receptacle*.
14. DIDYNAMIA .	4; 2 long and 2 short.
15. TETRADYNAMIA	6; 4 long and 2 short. *Flowers cruciform.*
16. MONADELPHIA . .	*Filaments* united at the base in one set.
17. DIADELPHIA . . .	*Filaments* united in two sets; *Flowers mostly papilionaceous.*
18. POLYADELPHIA . .	*Filaments* united in three or more sets.
19. SYNGENESIA . . .	*Anthers* united; *Flowers compound.*
20. GYNANDRIA . . .	*Stamens* inserted on the *Pistil.*
21. MONŒCIA	Stamens and Pistils in *separate Flowers* on the *same plant.*
22. DIŒCIA	Stamens and Pistils in *separate Flowers* on *two separate plants.*
23. POLYGAMIA . . .	Stamens and Pistils *separate* in some flowers; *united* in others, either on the *same plant*, or on *two* or *three* distinct ones.
24. CRYPTOGAMIA . .	*Fructification* concealed.

The Twenty-four Classes are subdivided into ORDERS.

(*See the characters of the Orders in the next page.*)

The *Orders* of the first thirteen Classes are founded on the number of *Styles* in each flower:

MONOGYNIA, 1 *Style;* DIGYNIA, 2; TRIGYNIA, 3; TETRAGYNIA, 4; PENTAGYNIA, 5; HEXAGYNIA, 6; HEPTAGYNIA, 7; OCTAGYNIA, 8; DECAGYNIA, 10; POLYGYNIA, many *Styles.*

The Orders of the 14th Class are two:

1. GYMNOSPERMIA, *Seeds* 4, apparently naked.
2. ANGIOSPERMIA, *Seeds* in a distinct seed-vessel.

The Orders of the 15th Class are two:

1. SILICULOSA, *Seeds* in a short Pod, or Pouch.
2. SILIQUOSA, *Seeds* in a long Pod.

In the 16th, 17th, and 18th Classes, the Orders are founded on the number of *Stamens* in each set:

TRIANDRIA, 3; PENTANDRIA, 5; DECANDRIA, 10, &c., in each set.

The Orders of the 19th Class are three, and are founded on the structure of the flower, which is *compound:*

1. ÆQUALIS . . . . . All the *florets* perfect.
2. SUPERFLUA . . . . *Florets* of the *disk* perfect; of the *ray*, with Pistil only.
3. FRUSTRANEA . . . *Florets* of the *disk* perfect; of the *ray*, with neither Stamen nor Pistil.

The Orders of the 20th Class are founded on the number of the *Stamens:*

MONANDRIA, 1; DIANDRIA, 2, &c.

The Orders of the 21st and 22d Classes are founded on the number, union, and situation of the *Stamens:*

MONANDRIA, DIANDRIA, &c. MONADELPHIA, &c.

The Orders of the 23d Class are three, and are:

MONŒCIA, *united flowers,* accompanied with *barren* or *fertile* ones, or *both,* all on *one plant;* DIŒCIA, the same, on *two different plants;* TRIŒCIA, the same, on *three different plants.*

The Orders of the 24th Class are Natural Orders or Families:

1. FILICES; 2. MUSCI; 3. HEPATICÆ; 4. LICHENES; 5. CHARACEÆ; 6. ALGÆ; 7. FUNGI.

SYNOPTICAL TABLE

OF

THE CLASSES, ORDERS, AND GENERA OF BRITISH PLANTS,

ARRANGED

ACCORDING TO THE LINNÆAN METHOD,

WITH REFERENCES TO THE PAGE WHERE THE SPECIES ARE DESCRIBED IN THE BODY OF THE WORK.

Class I. MONANDRIA.[1] 1 *stamen.*

Ord. I. Monogynia.[2] 1 *style.*

1. Salicornia. *Perianth* single, turbinate, fleshy, obscurely lobed. *Style* short. *Stigmas* bi-trifid. *Fruit* an 1-seeded *utricle*, included in the enlarged *perianth.* p. 280.
2. Hippuris. *Perianth* single, superior, forming a very indistinct rim to the germen. *Fruit* a small 1-seeded *nut.* p. 114.

(See Valeriana rubra in Cl. III.; Alchemilla arv. in Cl. IV.; Zostera in Cl. XXI.; Chara in Cl. XXIV.)

Ord. II. Digynia. 2 *styles.*

(See Callitriche in Cl. XXI.)

Class II. DIANDRIA. 2 *stamens.*

Ord. I. Monogynia. 1 *style.*

* *Perianth double, inferior, monopetalous, regular.*

1. Ligustrum. *Cor.* 4-cleft. *Berry* 2-celled, with the cells 2-seeded. p. 214.

[1] The anomalous genera and species (that is, such species as vary in the usual number of stamens or styles, or such genera as have been placed in the Class or Order in question by other authors) are here given in *italics* and in parentheses, and referred to their proper places.

[2] From *μονος*, one, and *γυνη*, here made applicable to the pistil, or style. When the styles are so short as not to be visible the stigmas are reckoned.

** *Perianth double, inferior, monopetalous, irregular. Seeds inclosed in a pericarp, which forms one piece.*

2. VERONICA. *Cor.* 4-cleft, rotate, lower segment narrower. *Caps.* 2-celled. p. 235.
3. PINGUICULA. *Cal.* 2-lipped, upper lip of 3, lower of 1, bifid segment. *Cor.* ringent, spurred. *Germen* globose, *Stigma* large, of 2 unequal plates or lobes. *Caps.* 1-celled. *Seeds* attached to a central receptacle. p. 262.
4. UTRICULARIA. *Cal.* 2-leaved, equal. *Cor.* personate, spurred. *Stigma* 2-lipped. *Caps.* globose, of 1 cell. *Seeds* fixed to a central receptacle. p. 264.

*** *Perianth double, inferior, monopetalous, irregular. Germen or pericarp deeply 4-lobed, or apparently formed of 4 seeds.*

5. LYCOPUS. *Cal.* tubular, 5-cleft. *Cor.* tubular; *limb* nearly equal, 4-cleft, upper segment broader and notched. *Stam.* distant, simple. p. 248.
6. SALVIA. *Cal.* 2-lipped, tubular. *Cor.* labiate; the tube dilated upwards and compressed. *Filaments* with 2 divaricating branches, 1 only bearing a perfect single cell of an anther. p. 248.

**** *Perianth double, superior.*

7. CIRCÆA. *Cal.* 2-leaved, but united into a short tube at the base. *Cor.* of 2 petals. *Caps.* 2-celled. *Cells* 1-seeded. p. 113.

***** *Perianth single or none.*

8. FRAXINUS. *Cal.* 0, or 4-cleft. *Cor.* 0, or of 4 petals. *Caps.* 2-celled, 2-seeded, compressed, and foliaceous at the extremity. *Seed* solitary, pendulous. *Flowers* often without stamens. p. 214.
9. LEMNA. *Perianth* single, monophyllous, membranaceous, urceolate. *Fruit* utricular. p. 337.
10. CLADIUM. *Perianth* single, glumaceous. *Glumes* of 1 piece or valve, 1-flowered, imbricating; outer ones sterile. *Fruit* or nut with a loose external coat, destitute of bristles at the base. p. 413.

Ord. II. DIGYNIA. 2 *styles.*

11. ANTHOXANTHUM. *Cal.* of 2 valves, glumaceous, 1-flowered. *Cor.* double, each of 2 valves; the exterior awned; the interior small, awnless (a *Grass*). p. 378.

(See HIEROCHLOË in Cl. III.)

CLASS III. TRIANDRIA. 3 *stamens.*

Ord. I. MONOGYNIA. 1 *style.*

* *Flowers superior.*

1. VALERIANA. *Cal.* a thickened margin at the top of the germen, at length unfolding into a feathery pappus. *Cor.* monopetalous, 5-cleft, gibbous or spurred at the base. *Fruit* 1-seeded, crowned with a feathery pappus. p. 163.

2. Fedia. *Cal.* small, unequal, toothed, crowning the fruit. *Cor.* monopetalous, 5-cleft, gibbous at the base. *Caps.* indehiscent, 3-celled, 3-seeded ; 2 cells generally abortive. p. 164.
3. Crocus. *Perianth* single, coloured ; *tube* very long ; *limb* cut into 6 equal segments. *Stigma* 3-lobed, plaited. p. 374.
4. Trichonema. *Perianth* single, petaloid, in 6 deep equal segments ; *tube* shorter than the *limb*. *Filaments* hairy. *Stigma* bipartite, slender. *Seeds* globose. p. 374.
5. Iris. *Perianth* single, petaloid, 6-cleft, each alternate segment longer and reflexed. *Stigmas* 3, petaloid, covering the stamens. p. 373.

** *Flowers inferior, glumaceous* (*dry and chaffy*). *Seed* 1.

6. Cyperus. This, together with 7. Schœnus, 8. Rhynchospora, 9. Scirpus, 10. Blysmus, 11. Eleocharis, and 12. Eriophorum, being all of the natural order Cyperaceæ, will be found described at p. 412, and the following pages.
13. Nardus. *Cal.* 0. *Cor.* of 2 valves. p. 379.

(Some Junci, see in Cl. VI.)

Ord. II. Digynia.

14. Alopecurus. This, together with all the other genera of this order, 14—52, together with Anthoxanthum and Nardus (*vide suprà*), being true grasses (Gramineæ), will be found described at p. 377, and following pages.

Ord. III. Trigynia. 3 *styles.*

53. Montia. *Cal.* of 2 leaves. *Cor.* of 5 irregular *petals*, united at the base into one. *Caps.* 3-valved, 3-seeded. p. 119.
54. Holosteum. *Cal.* of 5 leaves. *Pet.* 5, jagged at the point. *Caps.* 1-celled, opening at the extremity with 6 teeth. *Seeds* furrowed on one side, dotted. *Embryo* folded. p. 49.
55. Polycarpon. *Cal.* of 5 leaves, *Pet.* 5, emarginate. *Stam.* 3—5. *Caps.* 1-celled, 3-valved, many-seeded. p. 121.

Class IV. TETRANDRIA. 4 *stamens equal in height.*

Ord. I. Monogynia. 1 *style.*

* *Perianth double. Cor. monopetalous. Seed* 1.

1. Dipsacus. *Involucre* many-leaved. *Cal.* double, *ext.* very minute, forming a thickened limb to the germen ; *int.* cup-shaped, entire. *Receptacle* chaffy, spinous. *Fruit* angular, with 8 pores or depressed points, crowned with the double *cal.* (*Flowers* densely capitate.) p. 166.
2. Knautia. *Involucre* many-leaved. *Cal.* double ; *ext.* minute ; *int.* cup-shaped. *Fruit* upon a short stalk, compressed, with 4 pores or depressed points. p. 167.
3. Scabiosa. *Involucre* many-leaved. *Cal.* double ; *ext.* mostly membranaceous and plaited ; *int.* with about 5 bristles. *Fruit* subcylindrical, crowned with the double *cal.* (*Flowers* densely capitate.) p. 167.

** *Perianth double. Cor. monopetalous, superior. Seeds* 2.[1] (*Leaves whorled.*)

4. Galium. This, together with 5. Rubia, 6. Asperula, and 7. Sherardia, in the Nat. Ord. Rubiaceæ, will be found at p. 158, and the following pages.

*** *Perianth double. Cor. monopetalous, inferior. Seeds* 2, *or many.*

8. Cicendia. *Cal.* 4-cleft. *Cor.* 4-cleft, funnel-shaped, marcescent, the tube swellings. *Anthers* opening longitudinally. *Stigma* entire. *Caps.* 1-celled, 2-valved. *Seeds* attached to 2 sutural receptacles, which at length separate with the opening of the 2-valved capsule. p. 216.
9. Plantago. *Cor.* 4-cleft, the segments reflexed. *Stam.* very long. *Caps.* of 2 cells, 2- or many-seeded, bursting all round transversely. p. 272.
10. Centunculus. *Cor.* tubular, 4-partite. *Stam.* short. *Caps.* of 1 cell, many-seeded, bursting all round transversely. p. 268.

(Some Gentianæ, see in Cl. V. Ord. II.)

**** *Perianth double. Cor. of* 4 *petals.*

11. Epimedium. *Cal.* of 4 leaves, caducous. *Pet.* inferior, with an inflated *nectary* on the upper side. *Pod* 1-celled, 2-valved, many-seeded. p. 9.
12. Cornus. *Cal.* of 4 teeth. *Pet.* without a *nectary*, superior. *Nut* of the *drupe* with 2 cells and 2 seeds. p. 154.

(See Euonymus in Cl. V.; Cardamine and Coronopus in Cl. XV.

***** *Perianth single.*

13. Parietaria. *Perianth* 4-fid., inferior. *Filaments* of the *stam.* at first incurved, then expanding with elastic force. *Fruit* 1-seeded, enclosed by the enlarged perianth. (One or more of the central florets without stamens.) p. 296.
14. Alchemilla. *Perianth* inferior, 8-cleft, the 4 alternate and outer segments the smallest. *Fruit* 1- or 2-seeded, surrounded by the persistent perianth. p. 101.
15. Isnardia. *Cal.* 4-cleft, superior. *Petals* 4, or wanting. *Stigma* capitate. *Capsule* obovate, 4-angular, 4-valved, 4-celled, many-seeded, crowned with the *calyx*. p. 113.
16. Sanguisorba. *Perianth* 4-lobed, superior, coloured, with 4 scales or bracteas at the base. *Fruit* 1- or 2-seeded, surrounded by the persistent base only of the perianth. p. 102.

Ord. II. Digynia. 2 *styles.*

17. Bufonia. *Cal.* of 4 leaves. *Cor.* of 4 entire petals. *Caps.* flattened, 1-celled, 2-valved, 2-seeded. p. 47.

(See Alchemilla in Ord. II.; some Gentianæ and Cuscuta in Cl. V.)

[1] This little group belongs to the first division of the Rubiaceæ of *Juss.*, Stellatæ *Lindl.* In some of the genera, especially *Galium*, the calyx forms so small a rim or margin to the germen as to be scarcely visible, its tubular part being incorporated with the germen.

Ord. III. Tetragynia. 4 *styles.*

18. Ilex. *Cal.* 4—5-toothed. *Cor.* rotate, 4—5-cleft. *Stigmas* 4, sessile. *Berry* spherical, including 4 1-seeded *nuts.* p. 214.
19. Potamogeton. *Flowers* sessile, upon a *spike* or *spadix*, which issues from a sheathing *bractea* or *spatha.* *Perianth* single, of 4 scales. *Anthers* sessile, opposite the scales of the perianth. *Pistils* 4, which become 4 small *nuts.* *Embryo* curved. p. 338.
20. Ruppia. *Flowers* 2, on a *spadix* arising from the sheathing bases of the leaves, which perform the office of a *spatha.* *Perianth* 0. *Drupes* 4, pedicellate, their *nuts* 1-seeded. p. 343.
21. Sagina. *Cal.* of 4 leaves. *Petals* 4 (shorter than the calyx). *Capsule* 1-celled, 4-valved. p. 48.
22. Mœnchia. *Cal.* of 4 leaves. *Petals* 4 (as long as the cal.). *Caps.* of 1 cell, opening with 8 teeth at the extremity. p. 49.
23. Tillæa. *Cal.* 3—4-partite. *Pet.* 3 or 4. *Caps.* 3 or 4, 2-seeded. p. 121.
24. Radiola. *Cal.* of 4 leaves, united up to their middle, and mostly 3-cleft. *Petals* 4. *Caps.* of 8 cells and 8 valves. p. 59.

(See Cerastium tetrandrum, in Cl. X., Ord. III.)

Class V. PENTANDRIA. 5 *stamens.*

Ord. I. Monogynia. 1 *style.*

* *Perianth double, inferior. Cor. monopetalous. Germen deeply 4-lobed. Fruit of 4 seeds or nuts.*

As this is a perfectly natural group, corresponding with the Natural Order Borragineæ, all the genera (1—10) will be found described at p. 222., and following pages.

** *Perianth double, inferior. Corolla monopetalous. Germen or fruit of one piece or covering, including several seeds.*

11. Anagallis. *Cal.* 5-partite. *Cor.* rotate. *Stamens* hairy. *Capsule* bursting all round transversely. p. 265.
12. Lysimachia. *Cal.* 5-partite. *Cor.* rotate. *Stam.* not distinctly hairy. *Caps.* 1-celled, 10-valved. p. 265.
13. Cyclamen. *Cal.* campanulate, ½ 5-cleft. *Cor.* rotate, the mouth prominent, the segments reflexed. *Caps.* globose, 1-celled, opening with 5 teeth. p. 266.
14. Primula. *Cal.* tubular, 5-toothed. *Cor.* salver-shaped, its *tube* cylindrical, its mouth open. *Caps.* opening with 10 teeth. p. 267.
15. Hottonia. *Cal.* 5-partite. *Cor.* salver-shaped, with a short *tube.* *Stamens* inserted at the mouth of the tube. *Stigma* globose. *Caps.* globose (valveless, *Spr.*; opening with 5 teeth, *Sm.*), tipped with the long *style.* p. 267.
16. Menyanthes. *Cal.* 5-partite. *Cor.* funnel-shaped, the segments hairy within. *Stigma* 2-lobed. *Capsule* 1-celled; *seeds* parietal. p. 220.
17. Villarsia. *Cal.* 5-partite. *Cor.* rotate, the limb often ciliated. *Caps.* 1-celled; *seeds* parietal. p. 220.
18. Erythræa. *Cal.* 5-cleft. *Cor.* funnel-shaped, withering, its limb

short. *Anthers* at length spirally twisted. *Style* erect. *Stigmas* 2. *Caps.* linear, 2-celled : *Br.* p. 217.

19. DATURA. *Cal.* tubular, deciduous. *Cor.* funnel-shaped, plaited. *Stigma* 2-lobed. *Capsule* ½ 4-celled, 4-valved. p. 230.
20. HYOSCYAMUS. *Cal.* tubular, 5-cleft. *Cor.* funnel-shaped, oblique. *Caps.* 2-celled, opening with a lid. p. 231.
21. ATROPA. *Cal.* 5-partite. *Cor.* campanulate, the lobes equal. *Stam.* distant. *Berry* of 2 cells. p. 231.
22. SOLANUM. *Cal.* of 5—10 segments. *Cor.* rotate. *Anthers* opening with 2 pores at the extremity. *Berry* roundish, 2- or more celled. p. 231.
23. VERBASCUM. *Cal.* 5-partite. *Cor.* rotate, irregular. *Stam.* declined, often hairy. *Caps.* of 2 cells and 2 valves. p. 246.
24. CONVOLVULUS. *Cal.* 5-cleft. *Cor.* campanulate, plicate. *Stigmas* 2. *Caps.* of 1—3—4 cells, with as many valves. *Cells* 1—2-seeded. p. 221.
25. POLEMONIUM. *Cal.* 5-cleft. *Cor.* rotate. *Stam.* inserted upon the 5 teeth or valves which close the mouth of the corolla. *Stigmas* 3. *Capsule* 3-celled, 3-valved. p. 221.
26. AZALEA. *Cal.* 5-partite. *Cor.* shortly campanulate, regular. *Stam.* straight, inserted at the base of the *cor.* *Anthers* bursting longitudinally. *Caps.* 2—3-valved, 2—3-celled; dissepiment formed by the inflexed margins of the bifid valves. *Seeds* attached to a central, at length free, receptacle. p. 210.
27. VINCA. *Cal.* 5-partite. *Cor.* salver-shaped, the segments oblique, spirally imbricated in the bud. *Follicles* 2, erect. *Seeds* naked (destitute of seed down). p. 215.

(See GENTIANA in Ord. II.)

**** Perianth double, superior. Cor. monopetalous.*

28. SAMOLUS. *Cal.* 5-cleft. *Cor.* salver-shaped, its *tube* short, with 5 scales (imperfect *stamens*) at its mouth, alternating with the lobes. *Capsule* half-inferior, 1-celled, many-seeded, opening with 5 valves; *seeds* upon a large central free receptacle. p. 269.
29. JASIONE. *Cor.* rotate, in 5 deep segments. *Anthers* united at their base. *Stigma* club-shaped. *Caps.* 2-celled, opening at the top. (*Flowers collected into a head, within a many-leaved involucre.*) p. 204.
30. LOBELIA. *Cor.* irregular, 2-lipped, cleft longitudinally on the upper side. *Anthers* united. *Stigma* hairy. *Capsule* 2—3-celled, the upper free part 2-valved. p. 205.
31. PHYTEUMA. *Cor.* rotate, in 5 deep segments. *Filaments* dilated at the base. *Stigma* 2—3-cleft. *Caps.* of 2—3 cells, bursting at the side. (*Flowers in dense bracteated spikes or heads.*) p. 204.
32. CAMPANULA. *Cor.* campanulate or subrotate, with 5 broad and shallow segments. *Filaments* dilated at the base. *Stigma* 2—5-fid. *Caps.* 2—5-celled, bursting laterally, rarely at the extremity. p. 202.
33. LONICERA. *Cor.* irregular. *Berry* 1—3-celled, many-seeded. p. 156.

(See VIBURNUM in Ord. III.)

**** *Perianth double, inferior. Cor. of 4 or 5 petals.*

34. Rhamnus. *Cal.* urceolate, 4—5-cleft. *Petals* 4—5, sometimes wanting. *Stamens* opposite the petals. *Berry* 2—4-celled, 2—4-seeded. p. 72.
35. Euonymus. *Cal.* flat, 4—5-cleft, having a peltate disk within. *Pet.* 4—5. *Stam.* alternating with the petals, inserted upon an annular disk. *Caps.* with 3—5 angles and as many cells and valves; *seeds* with a coloured fleshy arillus. p. 71.
36. Impatiens. *Cal.* of 2 deciduous leaves. *Pet.* 4, very irregular; lower one cucullate with a spur. *Anthers* united. *Capsule* of 5 elastic valves. p. 69.
37. Viola. *Cal.* of 5 leaves, extended at the base. *Pet.* 5, unequal, the under one spurred at the base. *Anthers* connate, 2 of them spurred behind. *Capsule* of 1 cell and 3 valves. p. 35.

***** *Perianth double, superior. Cor. of 5 petals.*

38. Ribes. *Cal.* 5-cleft, bearing the *petals* and the *stamens*. *Style* divided. *Berry* 1-celled, many-seeded. p. 125.
39. Hedera. *Cal.* of 5 teeth. *Pet.* broadest at the base. *Style* single. *Berry* with 3—5 *seeds*, crowned by the calyx. p. 154.

****** *Flowers incomplete.*

40. Glaux. *Perianth* single, inferior, campanulate, coloured, of 1 piece, 5-lobed. *Caps.* globose, 1-celled, 5-valved, with about 5 *seeds*. p. 269.
41. Illecebrum. *Cal.* of 5 leaves, cartilaginous, subcucullate, ending in an awl-shaped point. *Pet.* 0 or reduced to 5 subulate *scales*. *Capsule* superior, with one *seed*, covered by the calyx. p. 120.
42. Thesium. *Perianth* 4—5-cleft, persistent. *Stam.* with a small fascicle of hairs. *Nut* inferior, somewhat drupaceous. p. 289.

Ord. II. Digynia. 2 *styles.*

* *Perianth double, inferior. Cor. monopetalous.*

43. Swertia. *Cal.* 4—5-partite. *Cor.* rotate, with 2 nectariferous glands at the base of each *segment*. *Caps.* 1-celled, 2-valved. p. 219.
44. Gentiana. *Cal.* 4—5-cleft. *Cor.* subcampanulate, funnel- or salver-shaped, tubular at the base, destitute of nectariferous glands. *Styles* often combined. *Caps.* of 1 cell, 2-valved. p. 218.
45. Cuscuta. *Cal.* 4—5-cleft. *Cor.* campanulate, 4—5-lobed. *Caps.* bursting all round transversely at the base, 2-celled, with the cells 2-seeded. (*Parasitical leafless plants, with long twining filiform stems.*) p. 222.

** *Perianth double, superior. Pet.* 5. *Seeds* 2.[1]

46. Hydrocotyle. This, together with all the genera in this extensive group (46—85) constituting the Nat. Ord. Umbelliferæ, will be found described at p. 131. and the following pages.

[1] In this division so much of the calyx is incorporated with the germen, and so minute are the segments or free portion of the limb, that at first sight, as in the second division of Cl. IV. Ord. I. (*Galium*, &c.), it would appear as if there were no calyx.

**** Perianth double, inferior. Pet. 5.*

(See Staphylea in Ord. III.)

***** Perianth single.*

86. Chenopodium. *Perianth* single, inferior, 5-cleft, persistent and unaltered, closing upon, but not wholly enveloping, the *fruit*. *Seed* solitary, lenticular. p. 275.
87. Beta. *Perianth* single, half-inferior, 5-cleft, persistent. *Seed* 1, reniform, imbedded in the fleshy base of the *calyx*. p. 279.
88. Salsola. *Perianth* single, inferior, 5-parted, persistent, enveloping the fruit with its base, and crowning it with its broad scariose limb. *Seed* solitary, its *cotyledon* spiral. p. 280.
89. Herniaria. *Cal.* deeply 5-cleft, persistent. *Stam.* 5 fertile and 5 sterile filaments inserted upon a fleshy disk. *Stigmas* nearly sessile. *Fruit* indehiscent, 1-seeded, covered by the calyx. p. 120.
90. Ulmus. Perianth single, inferior, persistent, 4—5-cleft. *Caps.* compressed, winged all round (a *Samara*), 1-seeded. p. 297.

(See Scleranthus, in Cl. X.; Polygonum, in Cl. VIII.)

Ord. III. Trigynia. 3 *styles.*

** Flowers superior.*

91. Viburnum. *Cal.* 5-cleft. *Cor.* of 1 petal, 5-lobed. *Berry* inferior, usually 1-seeded. (*Leaves simple.*) p. 156.
92. Sambucus. *Cal.* 5-cleft. *Cor.* of 1-petal, rotate, 5-lobed. *Berry* inferior, 3- or 4-seeded. (*Leaves pinnated.*) p. 155.

*** Flowers inferior.*

93. Staphylea. *Cal.* 5-partite, coloured, with an urceolate disk at the base. *Pet.* 5. *Styles* 2—3. *Capsule* membranaceous, of 2—3 cells. p. 71.
94. Tamarix. *Cal.* 5-partite, persistent. *Cor.* of 5 petals. *Stam.* 5—10. *Stigmas* sessile, feathery. *Caps.* 1-celled, 3-valved, many-seeded. *Seeds* pappose. p. 118.
95. Corrigiola. *Cal.* inferior, of 5 leaves, permanent. *Pet.* 5, not exceeding the calyx. *Seed* solitary, naked. p. 119.

(See Chenopodium in Ord. II.; Stellaria in Cl. X.)

Ord. IV. Tetragynia. 4 *styles.*

96. Parnassia. *Cal.* deeply 5-cleft. *Petals* 5. *Nectaries* 5, heart-shaped, fringed with globular-headed filaments. *Capsule* 1-celled, 4-valved, each valve bearing a longitudinal linear receptacle with numerous *seeds*. p. 64.

Ord. V. Pentagynia. 5 *styles.*

97. Statice. *Cal.* of 1 piece, funnel-shaped, plaited, dry, and membranaceous. *Pet.* 5, united at the base, bearing the *stamens*. *Capsule* with 1 *seed*, invested with the calyx. p. 270.
98. Linum. *Cal.* of 5 leaves, persistent. *Pet.* 5. *Caps.* globose, mucronate, with 10 valves and 10 cells; *seeds* ovate, compressed. p. 58.

99. Sibbaldia. *Cal.* in 10 alternately large and small segments. *Pet.* 5, inserted on the calyx. *Capsules* 5, indehiscent, in the bottom of the calyx, 1-seeded. (The number of stamens is liable to vary, and the capsules are sometimes ten.) p. 101.

(See Cerastium and Spergula in Cl. X.)

Ord. VI. Hexagynia. 6 *styles.*

100. Drosera. *Cal.* 5-cleft. *Pet.* 5. *Caps.* 1-celled, 3-valved, many-seeded. (*Plants with leaves clothed with beautiful glandular hairs.*) p. 38.

Ord. VII. Polygynia. *Many styles.*

101. Myosurus. *Cal.* of 5 leaves, prolonged at the base. *Pet.* 5, their claws tubular (nectariferous). *Pericarps* numerous, indehiscent, 1-seeded, collected upon a very long columnar receptacle. p. 3.

(See Ranunculus Ficaria in Cl. XIII.)

Class VI. HEXANDRIA. 6 *stamens, equal in height.*

Ord. I. Monogynia. 1 *style.*

* *Flowers complete, having a double perianth* (*cal. and cor.*).

1. Berberis. *Cal.* of 6 concave, coloured, inferior, deciduous leaves. *Pet.* 6, each with 2 glands at the base. *Berry* 2—3-seeded. p. 9.
2. Frankenia. *Cal.* of 1 piece, inferior. *Cor.* of 6 petals. *Stigmas* 3. *Caps.* of 1 cell, 3—4-valved; valves bearing many *seeds* at the margins. p. 40.
3. Peplis. *Cal.* campanulate, with 6 large and 6 alternating small teeth. *Pet.* 6, inserted upon the calyx, often wanting. *Caps.* superior, 2-celled, many-seeded. p. 117.

(See Lythrum in Cl. XII.)

** *Perianth single, superior.*

4. Leucojum. *Perianth* campanulate, superior, petaloid, of 6 equal pieces, a little thickened at the point. *Flowers* from a spatha. p. 377.
5. Galanthus. *Perianth* petaloid, of 6 pieces, 3 outer ones spreading, 3 inner smaller, erect, emarginate. Flowers from a spatha. p. 376.
6. Narcissus. *Perianth* superior, coloured, with a spreading 6-partite limb, and a campanulate or cup-shaped crown or nectary, within which are the *stamens*. *Flowers* from a spatha. p. 376.

*** *Perianth single, inferior, petaloid.*

7. Convallaria. *Perianth* inferior, petaloid, deciduous, 6-cleft, globose or cylindrical. *Berry* 3-celled. *Seeds* 1—2 in each cell. p. 345.

8. Allium. *Perianth* inferior, petaloid, of 6 ovate spreading pieces. *Caps.* triquetrous. (*Flowers umbellate, arising from a 2-leaved spatha.*) p. 347.
9. Gagea. *Perianth* coloured, of 6 persistent pieces, connivent below, spreading above. *Filaments* not dilated at the base. *Capsule* triangular. (*Flowers corymbose or umbellate, yellow, with foliaceous bracteas.*) p. 349.
10. Ornithogalum. *Perianth* inferior, petaloid, of 6 persistent pieces. *Stam.* alternately larger or dilated at the base. *Capsules* with 3 angles and 3 furrows. (*Flowers racemose or corymbose. Bracteas membranaceous.*) p. 349.
11. Scilla. *Perianth* inferior, of 6 leaves, petaloid, spreading, and deciduous. *Filaments* filiform, glabrous, inserted at the base of the perianth. (*Flowers racemed.*) p. 350.
12. Hyacinthus. *Perianth* inferior, of 1 piece, petaloid, 6-cleft or 6-partite, tubular, reflexed at the extremity. *Stamens* included. p. 351.
13. Muscari. *Perianth* inferior, of 1 piece, petaloid, ovate, inflated, 6-toothed. *Capsule* trigonous, with prominent angles; *cells* 2-seeded. p. 351.
14. Anthericum. *Perianth* inferior, petaloid, of 6 equal, spreading, elliptical pieces. *Stam.* filiform, mostly bearded. *Capsule* roundish, 3-celled; *seeds* angular. p. 351.
15. Asparagus. *Perianth* inferior, 6-partite, deciduous. *Stigmas* 3. *Berry* globose, 3-celled. *Seeds* few. *Embryo* excentric. p. 352.
16. Narthecium. *Perianth* inferior, petaloid, of 6 linear-lanceolate, spreading pieces. *Stam.* woolly. *Germen* pyramidal. *Caps.* 3-celled, 3-valved. *Seeds* with an appendage at each extremity. p. 361.
17. Fritillaria. *Perianth* campanulate, inferior, of 6 pieces, each with a nectariferous cavity. *Stigmas* 3. *Capsule* 3-celled, 3-valved, oblong; *seeds* flat. p. 346.
18. Tulipa. *Perianth* campanulate, inferior, of 6 pieces. *Nectaries* 0. *Stigma* sessile, 3-lobed. *Capsule* trigonous; *seeds* flat. p. 346.
19. Acorus. Flowers arranged upon a *spadix*. *Spatha* 0. *Perianth* of 6 pieces or scales, inferior. *Stigma* sessile. *Capsule* indehiscent, many-seeded. p. 335.

**** Perianth single, inferior, glumaceous.*

20. Juncus. *Perianth* inferior, of 6 leaves, glumaceous. *Caps.* 3-celled, 3-valved; *valves* with the seed-bearing dissepiment in their middle. (*Leaves rigid, mostly rounded, rarely plane, glabrous.*) p. 354.
21. Luzula. *Perianth* inferior, of 6 leaves, glumaceous. *Caps.* 1-celled, 3-valved; *valves* without dissepiments. *Seeds* 3, at the bottom of the cell. (*Leaves soft, plane, generally hairy.*) p. 360.

(See Peplis in Ord. I.; Polygonum in Cl. VIII.)

Ord. II. Digynia. 2 *styles.*

22. Oxyria. *Cal.* of 2 leaves. *Cor.* of 2 petals, a little larger than the *cal.* *Nut* triquetrous, with a broad membranous margin. *Embryo* erect, inverted. p. 287.

Ord. III. Trigynia. 3 *styles.*

23. Rumex. *Cal.* of 3 leaves combined at the base. *Cor.* of 3 petals. *Stigmas* multifid. *Nut* triquetrous, covered by the enlarged petals, which often bear tubercles. p. 284.
24. Tofieldia. *Perianth* single, 6-partite, having a small 3-partite *involucre*. *Stamens* glabrous. *Caps.* 3—6-celled; *cells* united at the base, many seeded. p. 353.
25. Scheuchzeria. *Perianth* single, petaloid, of 6 leaves. *Anthers* elongated. *Capsules* 3, inflated, 2-valved, 1—2-seeded. p. 334.
26. Triglochin. *Perianth* of 6 concave deciduous leaves, 3 outer and 3 inner. *Anthers* sessile, lodged in the leaves of the *perianth*, with their backs towards the *pistil*. *Capsules* 3—6, 1-seeded, united by a longitudinal *receptacle*, from which they usually separate at the base. p. 333.
27. Colchicum. *Perianth* single, tubular, very long, rising from a spatha; *limb* campanulate, 6-partite, petaloid. *Caps.* 3-celled; *cells* united at the base. p. 352.

(See Elatine in Cl. VIII.)

Ord. IV. Hexagynia. 6 *styles.*

28. Actinocarpus. *Cal.* of 3 leaves. *Petals* 3. *Germens* 6—8. *Capsules* combined at the base, spreading in a radiated manner, 2-seeded. *Embryo* much curved. p. 332.

Ord. V. Polygynia. *Many styles.*

29. Alisma. *Cal.* of 3 leaves. *Petals* 3. *Capsules* many, clustered, distinct, indehiscent, 1-seeded. *Embryo* much curved. p. 331.

Class VII. HEPTANDRIA. 7 *stamens.*

Ord. I. Monogynia. 1 *style.*

1. Trientalis. *Cal.* of 7 leaves. *Cor.* monopetalous, in 7 deep segments, regular and flat. *Caps.* 1-celled, with 7 valves, and many *seeds* on a fleshy, central, free receptacle. *Seeds* with a reticulated tunic. p. 269.

Class VIII. OCTANDRIA. 8 *stamens.*

Ord. I. Monogynia. 1 *style.*

* *Flowers complete* (*having Cal. and Cor.*)

1. Acer. *Cal.* inferior, 5-cleft. *Pet.* 5. *Germen* 2-lobed. *Capsules* 2, united at the base each with a long winged membrane (hence called a *Samara*), 1-celled, 1—2-seeded. p. 65.
2. Chlora. *Cal.* inferior, of 8 deep segments. *Cor.* of 1 *petal*, nearly rotate. *Stigmas* 2, bifid. *Caps.* 1-celled, 2-valved, many-seeded. p. 219.
3. Menziesia. *Cal.* inferior, cleft at the base into 4—5 deep segments. *Cor.* of 1 *petal*, ventricose. *Stam.* 8—10. *Capsule* 4—5-

celled, the dissepiments formed by the inflexed margins of the valves, and opening between these dissepiments. p.209.

4. Erica. *Cal.* inferior, of 4 leaves. *Cor.* of 1 *petal*, campanulate or ovate, often ventricose. *Capsule* 4-celled, 4-valved, dissepiments from the middle of the valves. p. 207.
5. Calluna. *Cal.* inferior, of 4 coloured leaves, concealing the *cor.*, accompanied by 4 *bracteas*, resembling an outer calyx. *Cor.* campanulate. *Caps.* 4-celled, 4-valved, dissepiments adhering to the *axis* of the fruit; valves opening at the dissepiments, and separating from them. p. 209.
6. Vaccinium. *Cal.* superior, 4—5-toothed. *Cor.* of 1 *petal*, ovate, campanulate, or rotate, 4—5-fid. *Anthers* with 2 pores. *Berry* globose, 4-celled, many-seeded. p. 206.
7. Œnothera. *Cal.* superior, tubular, with a deeply 4-cleft *limb*; the segments reflexed, more or less combined. *Pet.* 4. *Caps.* 4-valved, with many naked *seeds*. p. 112.
8. Epilobium. *Cal.* superior, 4-partite, segments free, deciduous. *Pet.* 4. *Capsule* elongated, 4-sided, 4-celled, 4-valved, many-seeded; *seeds* with a tuft of hairs at one extremity. p. 111.

** *Flowers incomplete.*

9. Daphne. *Perianth* single, inferior, often coloured, 4-fid. *Berry* with 1 *seed*. p. 288.

(See Monotropa in Cl. X.)

(Digynia. 2 *styles.*

See Polygonum in Ord. II.; Chrysosplenium and Scleranthus in Cl. X.)

Ord. II. Trigynia. 3 *styles.*

10. Polygonum. *Perianth* single, inferior, in 5 deep, coloured, persistent segments. *Stam.* 5—8. *Styles* 2, 3. *Fruit* a 1-seeded, compressed, or trigonous *nut*. p. 281.

Ord. III. Tetragynia. 4 *styles.*

11. Paris. *Cal.* of 4 leaves. *Pet.* 4. *Cells* of the *anthers* fixed one on each side the middle of a subulate *filament*. *Berry* 4-celled; each *cell* with several *seeds* in two rows. p. 346.
12. Adoxa. *Cal.* half inferior, 3-cleft. *Cor.* superior, 4—5-cleft. *Anther* terminal, 1-celled. *Berry* 4—5-celled. The side flowers have the corolla 5-cleft, the terminal one 4-cleft. p. 153.
13. Elatine. *Cal.* inferior, 3—4-partite, persistent. *Pet.* 3—4. *Stam.* 3—4 ? or 6—8. *Styles* 4 or 3, very short. *Caps.* 3—4-valved, 3—4-celled, many-seeded. *Seeds* cylindrical, furrowed, and transversely striated, attached to a central free receptacle. p. 41.

(See Sagina in Cl. IV.)

Class IX. ENNEANDRIA. 9 *stamens.*

Ord. I. Hexagynia. 6 *styles.*

1. Butomus. *Perianth* single, coloured, 6-partite, inferior. *Capsules* 6, many-seeded. *Seeds* fixed to the inner lining of the capsule. p. 333.

Class X. DECANDRIA. 10 *stamens.*

Ord. I. Monogynia. 1 *style.*

1. Monotropa. *Perianth* single, of 4—5 leaves, cucullate at the base. *Anthers* 1-celled, 2-lipped. *Caps.* superior, 4—5-celled. *Seeds* numerous, invested with a long *arillus.* p. 213.
2. Pyrola. *Cal.* 5-cleft. *Petals* 5, often connected at the base. *Anthers* opening with 2 pores. *Caps.* superior, 5-celled. *Seeds* numerous, invested with a long *arillus.* p. 212.
3. Andromeda. *Cal.* deeply 5-cleft. *Cor.* 1-petaled, ovate, or campanulate. *Anthers* with awns. *Caps.* superior, 4—5-celled, the dissepiments from the middle of the valves. p. 210.
4. Arbutus. *Cal.* deeply 5-cleft. *Cor.* 1-petaled, ovate. *Berry* superior, 5-celled, many-seeded. p. 211.

(See Menziesia and Vaccinium in Cl. VIII.)

Ord. II. Digynia. 2 *styles.*

5. Scleranthus. *Cal.* of 1 piece, 5-cleft. *Cor.* 0. *Stam.* inserted upon the *cal.*, 5 frequently abortive or wanting. *Capsule* 1-seeded, covered by the calyx. p. 121.
6. Chrysosplenium. *Cal.* superior, 4—5-cleft, somewhat coloured. *Cor.* 0. *Capsule* with 2 beaks, many-seeded. p. 131.
7. Saxifraga. *Cal.* superior, or inferior, or ½ inferior, in 5 segments. *Cor.* of 5 petals. *Caps.* with 2 beaks, 2-celled, many-seeded, opening between the beaks. *Seeds* upon a receptacle attached to the dissepiment. p. 126.
8. Saponaria. *Cal.* monophyllous, tubular, 5-toothed, without *bracteas* at the base. *Pet.* 6, clawed. *Capsule* oblong, 1-celled. p. 43.
9. Dianthus. *Cal.* monophyllous, tubular, 5-toothed, with about 4 imbricated opposite *scales* or *bracteas* at the base. *Pet.* 5, clawed. *Caps.* cylindrical, 1-celled. p. 42.

Ord. III. Trigynia. 3 *styles.*

10. Silene. *Cal.* monophyllous, tubular, often ventricose, 5-toothed. *Pet.* 5, clawed, mostly crowned at the mouth, and the *limb* generally notched or bifid. *Caps.* 3-celled, 6-toothed, many-seeded. p. 43.
11. Stellaria. *Cal.* of 5 leaves. *Pet.* 5, deeply cloven. *Caps.* opening with 6 teeth, many-seeded. p. 50.
12. Arenaria. *Cal.* of 5 leaves. *Pet.* 5, undivided. *Capsule* 1-celled, many-seeded. p. 52.
13. Cherleria. *Cal.* of 5 leaves, united at the base. *Pet.* 5, extremely minute, notched. *Stam.* with glands at the base. *Caps.* 1-celled, opening with 3 valves, many-seeded. p. 57.

(See Polygonum in Cl. VIII.)

Ord. IV. Pentagynia. 5 *styles.*

14. Cotyledon. *Cal.* 5-partite. *Cor.* monopetalous, tubular, 5-cleft. *Capsules* 5, each with a *gland* or nectariferous scale at its base. p. 122.
15. Sedum. *Cal.* in 5 (sometimes 4—8) deep segments, often resem-

bling the leaves. *Petals* 5, patent. *Germens* 5, each with a nectariferous scale at its base. p. 123.

16. Oxalis. *Cal.* 5-partite. *Pet.* 5, often united by the bases of their claws. *Filaments* often combined below, 5 outer ones shorter. *Caps.* angular, 5-celled; *cells* 2- or many-seeded. *Seeds* with an elastic *arillus*. p. 70.
17. Agrostemma. *Cal.* monophyllous, tubular, coriaceous, with 5 teeth. *Pet.* 5, clawed, their border undivided. *Caps.* opening with 5 teeth, 1-celled. p. 47.
18. Lychnis. *Cal.* monophyllous, tubular, 5-toothed. *Pet.* 5, clawed, crowned at the mouth, mostly divided at the border. p. 46.
19. Cerastium. *Cal.* of 5 leaves. *Pet.* 5, cloven. *Caps.* bursting at the top with 10 teeth (5 in *C. aquaticum*). p. 55.
20. Spergula. *Cal.* 5-leaved. *Pet.* 5, undivided. *Caps.* ovate, 5-celled, 5-valved. p. 49.

(See Silene and Stellaria in Ord. III.; Adoxa in Cl. VIII.)

Class XI. DODECANDRIA. 12 (—19) *stamens.*

Ord. I. Monogynia. 1 *style.*

1. Asarum. *Perianth* single, 3-cleft, superior. *Caps.* 6-celled. p. 290.
2. Lythrum. *Cal.* inferior, tubular, with 12 teeth, alternately smaller. *Pet.* 6, inserted upon the calyx. *Capsule* oblong, 2-celled. p. 117.

Ord. II. Digynia. 2 *styles.*

3. Agrimonia. *Cal.* turbinate, covered with hooked bristles, 5-cleft, inferior. *Pet.* 5, inserted upon the calyx. *Stam.* 7—20. *Fruit* muricated. p. 101.

Ord. III. Trigynia. 3 *styles.*

4. Reseda. *Cal.* of 1 piece, many-parted. *Pet.* more or less divided and unequal. *Caps.* of 1 cell, opening at the top. p. 33.

(Tetragynia. 4 *styles.*

See Tormentilla in Cl. XII.)

Ord. IV. Dodecagynia. 12 *styles.*

5. Sempervivum. *Cal.* 12-cleft. *Pet.* 12. *Capsules* 12. p. 122.

Class XII. ICOSANDRIA. 20 *or more stamens placed on the calyx.*

As the whole of the genera in this class (1. *Prunus*, in Monogynia; 2. *Mespilus*, 3. *Cratægus*, 4. *Cotoneaster*, 5. *Pyrus*, 6. *Spiræa*, in Pentagynia; 7. *Rosa*, 8. *Rubus*, 9. *Fragaria*, 10. *Comarum*, 11 *Potentilla*, 12. *Tormentilla*, 13. *Geum*, and 14. *Dryas*, in Polygynia) all belong to the Nat. Ord. Rosaceæ, they will be found characterised at p. 91. and following pages.

Class XIII. POLYANDRIA. *Many stamens inserted upon the receptacle.*

Ord. I. Monogynia. 1 *style.*

* *Petals* 4.

1. Papaver. *Cal.* of 2 caducous leaves. *Pet.* 4. *Stigma* sessile, radiated. *Caps.* superior; the *seeds* on parietal *receptacles* projecting towards the centre of the single *cell*, and escaping by pores beneath the permanent *stigma*. p. 11.
2. Meconopsis. *Cal.* of 2 caducous leaves. *Pet.* 4. *Style* evident. *Stigma* of few rays. *Capsule* opening at the top by 4—6 valves. *Receptacles* of the *seeds* filiform. p. 12.
3. Glaucium. *Cal.* of 2 leaves, caducous. *Pet.* 4. *Stigma* 2-lobed. *Pod* superior, linear, 2- (3- or 4-) celled, with as many valves; *seeds* numerous, dotted. (*Glaucium* and *Roemeria* De Cand.) p. 12.
4. Chelidonium. *Cal.* of 2 leaves, caducous. *Pet.* 4. *Stigma* 2-lobed. *Pod* superior, linear, 1-celled, 2-valved; *seeds* numerous, crested. p. 13.
5. Actæa. *Cal.* of 4 leaves, caducous. *Pet.* 4. *Berry* 1-celled; *seeds* numerous. p. 8.

** *Petals* 5.

6. Helianthemum. *Cal.* of 3 equal leaves, or 5, of which 2 outer ones are smaller. *Pet.* 5. *Stigma* capitate. *Caps.* 3-valved. p. 34.
7. Tilia. *Cal.* 5-partite, deciduous. *Pet.* 5, with or without a *nectary* at the base. *Fruit* coriaceous, 5-celled, without valves. *Cells* 1—5, 2-seeded. p. 61.

*** *Petals numerous.*

8. Nymphæa. *Cal.* of 4—5 leaves. *Pet.* numerous, inserted, as well as the *stamens*, upon a fleshy disk or covering to the germen (so as apparently to arise from it). *Berry* many-celled, many-seeded, deliquescent; *seeds* in an *arillus*. p. 10.
9. Nuphar. *Cal.* of 5—6 leaves. *Pet.* numerous, inserted, as well as the *stamens*, upon the *receptacle*. *Berry* superior, many-celled, many-seeded. p. 10.

Ord. II. Pentagynia. *Styles variable*, 2—6.

10. Helleborus. *Cal.* of 5 persistent leaves. *Pet.* 8—10, small, tubular, and nectariferous. *Follicles* nearly erect, many-seeded. p. 7.
11. Pæonia. *Cal.* of 5 leaves. *Pet.* 5—10, concave. *Follicles* 2—5, with many *seeds*, and crowned with the bilamellated *stigmas*. p. 9.
12. Delphinium. *Cal.* coloured, deciduous, irregular, upper leaflet produced at the base into a *spur*. *Pet.* 4.; 2 upper ones with appendages included within the spur. p. 8.
13. Aconitum. *Cal.* petaloid, irregular, upper leaflet helmet-shaped; 2 upper petals or nectaries on long stalks, and concealed within the helmet-shaped leaflet. p. 8.
14. Aquilegia. *Cal.* of 5 leaves, deciduous, coloured. *Pet.* 5, terminating below in a horn-shaped spur, or nectary. p. 7.

15. STRATIOTES. *Spatha* of 2 leaves. *Cal.* 3-cleft. *Cor.* of 3 petals. *Berry* inferior, angular, with 6 cells, many-seeded. p. 362.

All the genera in this Ord. belong to RANUNCULACEÆ, except 15. STRATIOTES.

(See RESEDA in Cl. XI. and TROLLIUS and CALTHA in Ord. POLYGYNIA.)

Ord. III. POLYGYNIA. *Many styles.*

* *Germens small, roundish, 1-seeded.*

16. THALICTRUM. *Cal.* of 4—5 leaves. *Cor.* 0. *Pericarps* without awns. p. 2.
17. CLEMATIS. *Cal.* of 4—6 leaves. *Pet.* 0. *Pericarps* terminated by a long, mostly feathery, awn. p. 1.
18. ANEMONE. *Involucre* of 3 divided leaves, more or less remote from the flower. *Cal.* petaloid, of 5—9 leaves. *Cor.* 0. p. 2.
19. ADONIS. *Cal.* of 5 leaves. *Pet.* 5—10, without a nectary. *Pericarps* without awns. p. 3.
20. RANUNCULUS. *Cal.* of 5 (rarely 3) leaves. *Pet.* 5 (rarely many), with a nectary at the base. *Pericarps* without awns.—p. 4. In the pore or nectary of the petals of this and of *Myosurus* we observe an affinity with the tubular petals of *Helleborus*, and even of *Trollius;* only in the 2 latter the petals are more altered in shape.

** *Germens elongated, many-seeded.*

21. TROLLIUS. *Cal.* of 5, or many, coloured leaves. *Pet.* 5, or many, small, linear, with an obscure depression above the contracted base. *Follicles* many-seeded. p. 7.
22. CALTHA. *Cal.* of 5 or more petaloid leaves. *Pet.* none. *Follicles* several, compressed, spreading, with many *seeds*. p. 6.

All in this Order likewise belong to RANUNCULACEÆ.

(See HELLEBORUS in Ord. II.)

CLASS XIV. DIDYNAMIA.[1] *4 stamens; 2 longer than the other two.*

Ord. I. GYMNOSPERMIA.[2] *Germen or fruit deeply 4-lobed, or apparently of 4 seeds.*

All in this Order, 21 genera, correspond to the LABIATÆ of Jussieu; and they are consequently described in p. 247. *et seq.*

Ord. II. ANGIOSPERMIA.[3] *Seeds inclosed in a distinct capsule.*

As all in this Order, 15 genera, with the exception of *Verbena*, *Linnæa*, and *Orobanche*, (including Gen. 22—33.) will be found in

1 From δις, *two*, and δυναμις, a *power*, or *superiority* of two stamens over the other two.

2 From γυμνος, *naked*, and σπερμα, the *seed*.

3 From αγγειον, a *vessel* or *capsule*, and σπερμα, the *seed*.

the second group (B.) of the Nat. Ord. SCROPHULARINEÆ at p. 238. *et seq.*, their names and characters need not be here repeated. I shall merely distinguish in this place —

34. VERBENA. *Cal.* tubular, with 5 teeth, one of them generally shorter than the rest. *Cor.* tubular, with the limb rather unequal, 5-cleft. *Stamens* included (sometimes only 2). *Seeds* 2 or 4, enclosed in a thin evanescent pericarp. p. 262.
35. LINNÆA. *Cal.* 5-cleft, superior. *Cor.* campanulate, 5-cleft, equal. *Fruit* a dry 3-celled *berry*, with one cell only bearing a perfect *seed*. *Involucre* of about 4 leaves at the base of the germen. p. 157.
36. OROBANCHE. *Cal.* of 2 lateral, often combined and bifid segments, bracteated. *Cor.* ringent, 4—5-cleft. A *gland* at the base of the *germen* beneath. *Stigma* capitate. *Capsule* 2-valved, bearing numerous minute *seeds* on parietal longitudinal *receptacles*. p. 232.

CLASS XV. TETRADYNAMIA.[1] 6 *stamens*, 4 *long and* 2 *short.*

This class is a perfectly natural one, entirely corresponding with the Nat. Ord. CRUCIFERÆ, which see at p. 15.

CLASS XVI. MONADELPHIA.[2] *Filaments combined in one set.*[3]

Ord. I. PENTANDRIA. 5 *perfect stamens.*

1. ERODIUM. *Style* 1. *Cal.* of 5 leaves. *Cor.* of 5 petals. *Glands* 5. Five alternate *stamens* imperfect. *Fruit* beaked, separating into five 1-seeded *capsules*, each with a long spiral *awn*, bearded on the inside. p. 68.

(See LINUM in Cl. V. Ord. I.; GERANIUM PUSILLUM in Ord. DECANDRIA; OXALIS in Cl. X.)

Ord. II. DECANDRIA. 10 *stamens.*

2. GERANIUM. *Style* 1. *Cal.* of 5 leaves. *Cor.* of 5 regular petals. *Glands* 5. *Fruit* beaked, separating into five 1-seeded *capsules*, each with a long naked awn. p. 66.

(See some LEGUMINOSÆ in Cl. XVII. Ord. I.)

Ord. III. POLYANDRIA. *Many stamens.*

3. LAVATERA. *Styles* numerous. *Cal.* double; *ext.* 3-lobed. *Capsules* numerous, circularly arranged, 1-seeded. p. 59.

[1] From τετρα, *four*, and δυναμις, a *power* or *superiority* in length of four over the other two stamens.

[2] From μονος, *one*, and αδελφος, *brotherhood*; one united set of stamens.

[3] In *Erodium* and *Geranium* the union of the filaments takes place only at the very base, and is with difficulty seen.

4. Malva. *Styles* numerous. *Cal.* double; *ext.* of 3 leaves. *Capsules* numerous, circularly arranged, 1-seeded. p. 60
5. Althæa. *Styles* numerous. *Cal.* double; *ext.* of 6—9 leaves. *Capsules* numerous, circularly arranged, 1-seeded. p. 60.

Class XVII. DIADELPHIA.[1] *Filaments combined in two sets.*

Ord. I. Hexandria. 6 *stamens.*

1. Corydalis. *Cal.* of 2 small deciduous leaves. *Pet.* 4, one of them gibbous or spurred at the base. *Pod* 2-valved, compressed, many-seeded. p. 14.
2. Fumaria. *Cal.* of 2 deciduous leaves. *Pet.* 4, one of them gibbous or spurred at the base. *Fruit* indehiscent, 1-seeded; the *style* deciduous. p. 13.

Ord. II. Octandria. 8 *stamens.*

3. Polygala. *Cal.* of 5 leaves, 2 of them wing-shaped and coloured. *Petals* combined by their claws with the filaments, the lower one keeled. *Capsules* compressed. *Seeds* downy, crested at the hilum. p. 39.

Ord. III. Decandria. 10 *stamens.*

All in this order belong to the Nat. Ord. Leguminosæ, which see p. 73.

Class XVIII. POLYADELPHIA.[2] *Filaments combined in more than two sets.*

Ord. I. Polyandria. *Many stamens.*

1. Hypericum. *Cal.* 5-partite or 5-leaved, inferior. *Pet.* 5. *Filaments* united at the base into 3 or 5 sets. *Capsule* many-seeded. p. 62.

Class XIX. SYNGENESIA.[3] *Anthers united into a tube. Flowers compound.*

All the genera of this extensive class, together with *Xanthium* in Monœcia, belong to the Nat. Ord. Compositæ, p. 167.

[1] From δις, *two*, and αδελφος, *brotherhood*, stamens in two sets.
[2] From πολυς, *many*, and αδελφος, many sets of stamens.
[3] From συνγενεσις, implying union of the anthers.

Class XX. GYNANDRIA.[1] *Stamens situated upon the style or column, above the germen.*

Ord. I. Monandria, *one stamen;* and Ord. II. Diandria, *2 stamens.*

These two Orders include the Orchideæ, Gen. 1—14. See p. 362.

Ord. III. Hexandria. *6 stamens.*

15. Aristolochia. *Perianth* superior, single, tubular, often swelling at the base, the mouth dilated on one side. *Stigma* with 6 lobes. *Capsule* inferior, with 6 *cells.* p. 290.

Class XXI. MONŒCIA.[2] *Stamens and pistils in separate flowers on the same plant.*

Ord. I. Monandria. *1 stamen.*

1. Euphorbia. *Involucre* of 1 piece, including several barren flowers, and 1 fertile.—*Barr. fl.* A single *stamen* without calyx or corolla. — *Fert. fl.* A single *pistil* without calyx (or rarely a very minute one) or corolla. *Germen* 3-lobed. *Styles* 3, cleft. *Caps.* 3-seeded. p. 292.
2. Callitriche. *Barren fl. Perianth* single, of 2 leaves (they are, rather, 2 bracteas) or none. *Anther* of 1 cell.—*Fert. fl. Germen* 4-lobed, lobes laterally compressed, indehiscent, with 4 1-seeded cells. p. 115.
3. Zannichellia. *Barren fl. Perianth* none.—*Fert. fl. Perianth* single, of 1 leaf. *Germens* 4 or more. *Style* 1. *Stigma* peltate. *Capsules* nearly sessile. p. 344.
4. Zostera. *Stamens* and *pistils* inserted in 2 rows upon one side of a *spadix. Spatha* foliaceous. *Anthers* ovate, sessile, alternating with the *germens. Germen* ovate. *Style* bifid. *Fruit* with 1 *seed* (bursting vertically: *Wilson*). p. 343.

(For Chara, see Cl. Cryptogamia.)

Ord. II. Diandria. *2 stamens.*

(See Callitriche in Ord. I.; Carex in Ord. III.)

Ord. III. Triandria. *3 stamens.*

5. Typha. *Flowers* collected into very dense cylindrical *spikes* or *catkins.* — *Barren fl. Perianth* 0. *Stam.* 3 together upon a chaffy or hairy *receptacle*, united below into 1 filament. — *Fert. fl. Perianth* 0. *Pericarp* pedicellate, surrounded at the base with hairs resembling a *pappus.* p. 336.
6. Sparganium. *Flowers* in spherical dense heads. — *Barren fl. Perianth* single, of 3 leaves. — *Fertile fl. Perianth* single, of 3 leaves. *Drupe* dry, with 1 *seed.* p. 336.

[1] From γυνη and ανηρ, implying an union of the stamen and pistil.
[2] From μονος, *one*, and οικος, *a house.*

7. Carex. *Flowers* collected into an imbricated *spike*. *Calyx* (as it is usually called) a scale. — *Barren fl.* *Cor.* 0. — *Fertile fl.* *Cor.* of 1 piece, urceolate, swollen. *Stigmas* 2—3. *Nut* triquetrous, included within the persistent corolla (which is thus considered to form part of the *fruit*). p. 421.
8. Elyna. *Spikelets* 2-flowered, upper one *sterile*, lower one *fertile* (sometimes 1 is wanting), included in a broad sheathing *bractea*, and each within a convolute *scale*. *Cal.* 0. *Cor.* 0. — *Barren fl.* *Stam.* 3. — *Fertile fl.* *Pistil* 1. *Stigmas* 3. *Nut* obtusely trigonal, surrounded by its convolute scale. — p. 420. In habit nearly allied to *Scirpus*, and still more closely to *Blysmus*; but the flowers are monœcious: it has not the urceolate corolla of *Carex*.

Ord. IV. Tetrandria. 4 *stamens.*

9. Littorella. *Barren fl.* *Cal.* of 4 leaves. *Cor.* 4-fid. *Stam.* very long. — *Fertile fl.* *Cal.* 0 (unless three *bracteas* can be so called). *Cor.* urceolate, contracted at the mouth. *Style* very long. *Caps.* 1-seeded. p. 273.
10. Alnus. *Flowers* collected into imbricated *catkins*. — *Barren fl.* *Scale* of the *catkin* 3-lobed, with 3 *flowers*. *Perianth* single, 4-partite. — *Fertile fl.* *Scale* of the *catkin* subtrifid, with 2 *flowers*. *Perianth* 0. *Styles* 2. *Nut* compressed. p. 301.
11. Buxus. *Flowers* clustered, axillary. — *Barren fl.* *Perianth* single, of 4 leaves, 2 opposite ones smaller (with one *bractea* at the base). Rudiment of a *germen*. — *Fertile fl.* *Cal.* as in the *barren fl.* (with 3 *bracteas* at the base). *Styles* 3. *Caps.* with 3 beaks, 3-celled; *cells* 2-seeded. p. 295.
12. Urtica. *Barren fl.* *Perianth* single, of 4 leaves, containing the cup-shaped rudiment of a *pistil*. — *Fertile fl.* *Perianth* single, of 2 leaves. *Pericarp* 1-seeded, shining. p. 296.

(See Eriocaulon in Ord. VI.; Myrica in Cl. XXII.)

Ord. V. Pentandria. 5 *stamens.*

13. Xanthium. *Barren fl.* *Involucre* of few *scales*, with many small, capitate *flowers*, upon a common receptacle. *Cal.* 0. *Cor.* obovate, sessile. *Anthers* terminating a tube which is inserted at the base of the cor. *Germen* abortive. — *Fertile fl.* *Involucre* single, prickly, with 2 beaks entirely enclosing 2 flowers; the 2 *stigmas* only protruded from small apertures within the beaks. *Cal.* 0. *Cor.* 0. *Fruit* 1-seeded, included in the enlarged and hardened *involucre*. p. 201.
14. Amaranthus. *Barren fl.* *Perianth* single, deeply 3—5-partite. *Stam.* 3—5. — *Fertile fl.* *Perianth* single, deeply 3—5-partite. *Styles* 3 or 2. *Capsule* of 1 cell, with 1 *seed*, bursting all round transversely. p. 274.
15. Bryonia. *Barren fl.* *Cal.* 5-toothed. *Cor.* 5-cleft. *Filaments* 3. *Anthers* 5. — *Fertile fl.* *Cal.* 5-dentate. *Cor.* 5-cleft. *Style* trifid. *Berry* inferior, globose, many-seeded. p. 118.

Ord. VI. Hexandria. 6 *stamens.*

16. Eriocaulon. *Flowers* collected into a compact scaly *head.* — *Barren flowers* in the centre. *Perianth* single, 4—6-cleft, the *inner segments* united nearly to their summit. *Stam.* 4—6. — *Fertile flowers* in the circumference. *Perianth* single, deeply 4-partite. *Style* 1. *Stigmas* 2—3. *Caps.* 2—3-lobed, 2—3-celled. *Cells* 1-seeded. p. 354.

(See Quercus in Ord. Polyandria.)

17. Ceratophyllum. *Barren fl. Cal.* inferior, multipartite. *Cor.* 0. *Stam.* 16—20. — *Fertile fl. Cal.* multipartite. *Cor.* 0. *Germen* 1. *Style* filiform, curved. *Stigma* simple. *Nut* superior, 1-seeded. p. 116.
18. Myriophyllum. *Barren fl. Cal.* inferior, of 4 leaves. *Pet.* 4. *Stam.* 8. — *Fertile fl. Cal.* of 4 leaves. *Pet.* 4. *Stigmas* 4, sessile. *Nuts* 4, sessile, subglobose, 1-seeded. p. 114.
19. Sagittaria. *Barren fl. Cal.* 3-leaved. *Pet.* 3. *Stam.* numerous. — *Fertile fl. Cal.* 3-leaved. *Pet.* 3. *Pistils* very numerous, collected into a *head. Pericarps* 1-seeded, compressed, margined. p. 332.
20. Arum. *Spatha* of one leaf, convolute at the base. *Perianth* 0. *Spadix* with germens at the base. *Stam.* (sessile) near the middle of the *spadix,* which is naked above. *Berry* with 1 *cell* and many *seeds.* p. 335.
21. Poterium. *Flowers* collected into a head, with 3 (or 4) bracteas at the base of each; upper ones fertile. — *Barren fl. Cal.* of 4 deep segments. *Cor.* 0. *Stam.* 30—40, with very long flaccid filaments. — *Fertile fl. Cal.* tubular, contracted at the mouth, with 4 deciduous teeth. *Pistils* 2. *Stigmas* tufted. *Pericarps* 2, 1-seeded, invested with the hardened 4-angled tube of the calyx. p. 102.
22. Quercus. *Barren fl.* in a lax *catkin* or *spike. Perianth* single, 5—7-cleft. *Stam.* 5—10. — *Fertile fl. Involucre* of many little scales united into a *cup. Perianth* single, closely investing the germen, 6-toothed. *Germen* 3-celled. *Style* 1. *Stigmas* 3. *Nut* (or *acorn*) 1-celled, 1-seeded, covered by the persistent enlarged perianth, and surrounded at the base by the enlarged cup-shaped *involucre.* p. 326.
23. Fagus. *Barren fl.* in a globose *catkin. Perianth* single, of 1 leaf, campanulate, 6-cleft. *Stam.* 5—12. — *Fertile fl.* 2, within a 4-lobed prickly *involucre. Perianth* single, urceolate, with 4—5 minute lobes. *Germen* incorporated with the perianth, 3-celled, 2 becoming abortive. *Styles* 3. *Nuts* 1-seeded, invested with the enlarged *involucre.* p. 325.
24. Castanea. *Barren fl.* in a very long cylindrical *catkin. Perianth* single, of 1 leaf, 6-cleft. *Stam.* 5—20. — *Fertile fl.* 3, within a 4-lobed, thickly muricated *involucre. Perianth* single, urceolate, 5—6-lobed, having the rudiments of 12 *stam. Germen* incorporated with the *perianth,* 6-celled, each cell 2-seeded, 5 of the cells mostly abortive. *Styles* 6. *Nut* 1-seeded, invested with the enlarged *involucre.* p. 325.
25. Betula. *Barren fl.* in a cylindrical *catkin*; its scales 3-flowered. *Perianth* 0. *Stam.* 10—12. — *Fertile fl.* Scale of the *catkin* imperfectly 3-lobed, 3-flowered. *Perianth* 0. *Styles* 2. *Germen*

compressed, with 2 cells, 1 of which is abortive. *Nuts* compressed, with a membranaceous margin, 1-seeded. p. 300.

26. Carpinus. *Barren fl.* in a cylindrical *catkin*; its scales roundish, ciliated at the base. *Stam.* 8—20. — *Fertile fl.* in a lax *catkin*; its scales large, foliaceous, 3-lobed, 1-flowered. *Involucre* 0. *Perianth* of 1 leaf, urceolate, 6-dentate, incorporated with the 2-celled *germen*, of which 1 cell is abortive. *Styles* 2. *Nut* ovate, striated, 1-seeded. p. 327.

27. Corylus. *Barren fl.* in a cylindrical *catkin*; its scales 3-cleft. *Perianth* 0. *Stam.* 8. *Anthers* 1-celled. — *Fertile fl.* *Perianth* obsolete. *Germens* several, surrounded by a scaly *involucre*. *Stigmas* 2. *Nut* 1-seeded, invested at the base with the enlarged, united, coriaceous scales of the involucre. p. 327.

Ord. VIII. Monadelphia. *Stamens united in one set.*

28. Pinus. *Barren fl.* in crowded racemose *catkins*; the scales peltate, bearing 2 1-celled sessile *anthers*. *Perianth* 0. — *Fertile fl.* in an ovate *catkin*; its scales closely imbricated, 2-flowered. *Perianth* 0. *Pericarp* 1-seeded, terminated by a long winged appendage, and covered with the imbricated scales, forming a *cone* (*strobilus*). p. 329.

Class XXII. Dicecia.[1] *Stamens and pistils in separate flowers and on different plants.*

(Monandria. 1 *stamen*. For some *Salices* see Ord. II.)

Ord. I. Diandria. *Stamens* 1—5, *mostly* 2.

1. Salix. *Barren fl.* *Scales* of the *catkin* single-flowered, imbricated, with a nectariferous *gland*. *Perianth* 0. *Stam.* 1—5. —*Fertile fl.* *Scales* of the *catkin* single-flowered, imbricated, with a nectariferous *gland*. *Perianth* 0. *Stigmas* 2, often cleft. *Caps.* 1-celled, 2-valved, many seeded. *Seeds* comose. p. 301.

Ord. II. Triandria. 3 *stamens.*

2. Empetrum. *Barren fl.* *Perianth*, many imbricating scales, of which the 3 inner are often regular, spreading, and petaloid. *Stam.* 3, with long filaments. *Rudiment* of a *pistil*, with a many-cleft *stigma*.—*Fertile fl.* *Perianth* as in the barren. *Germen* globose. *Style* short. *Stigma* dilated, peltate, rayed. *Berry* superior, globose, with 6—9 seeds. p. 290.

3. Ruscus. *Barren fl.* *Perianth* single, of 6 leaves. *Seeds* comose. *Filaments* combined at the base. *Anthers* 3—6.—*Fertile fl.* *Perianth* single, of 6 leaves. *Nectary* tubular. *Style* 1. *Stigma* 1. *Berry* superior, 3-celled; *cells* 2-seeded. p. 345.

(See Valeriana dioica in Cl. III. Some Salices in Ord. I.)

Ord. III. Tetrandria. 4 *stamens.*

4. Viscum. *Barren fl.* *Cal.* obsolete. *Pet.* 4, ovate, fleshy, united at the base, and bearing each a single anther, adnate with the

[1] From δις, *two*, and οικος, *a house*.

upper surface.—*Fertile fl. Cal.* an obscure margin, superior. *Petals* 4, erect, ovate, very minute. *Stigma* sessile. *Berry* inferior, bearing 1 *seed*, with 1—2 *embryos* (sometimes 3: *Mr. W. Wilson*). p. 155.

5. Hippophae. *Barren fl.* collected into a small sort of *catkin*, each *scale* bearing a flower. *Perianth* single, of 2 deep roundish valves. *Anthers* linear, sessile.—*Fertile fl.* solitary. *Perianth* single, tubular, cloven at the summit. *Germen* superior. *Style* shot. *Stigma* subulate, exserted. *Nut* 1-seeded, surrounded by the large, coloured, berry-like *calyx*. p. 288.

6. Myrica. *Barren fl. Scales* of the *catkin* concave. *Perianth* 0. —*Fertile fl. Scales* of the *catkin* concave. *Perianth* 0. *Styles* 2. *Drupe* 1-celled, 1-seeded. p. 328.

(See Rhamnus in Cl. V.; Urtica in Cl. XXI.)

Ord. IV. Pentandria. *5 stamens.*

7. Humulus. *Barren fl. Perianth* single, of 5 leaves. *Anthers* with 2 pores at the extremity.—*Fertile fl. Scales* of the *catkin* large, persistent, concave, entire, single-flowered. *Perianth* 0. *Styles* 2. *Seed* 1. p. 297.

(See Ribes in Cl. V.; Bryonia in Cl. XXI.; Salix in Ord. I.)

Ord. V. Hexandria. *6 stamens.*

8. Tamus. *Barren fl. Perianth* single, in 6 deep segments.—*Fertile fl. Perianth* single, superior, in 6 deep segments, contracted at the neck, superior. *Stigmas* 3. *Berry* of 3 cells. p. 377.

(See Rumex in Cl. VI.)

Ord. VI. Octandria. *8 stamens.*

9. Populus. *Barren fl. Scales* of the *catkins* jagged. *Anthers* 8—30, arising from a turbinate, oblique, entire, single *perianth*. —*Fertile fl. Scales* of the *catkin* jagged. *Perianth* turbinate. *Stigmas* 4 or 8. *Caps.* superior, 2-celled, 2-valved, many-seeded. *Seeds* comose. p. 324.

10. Rhodiola. *Barren fl. Cal.* 4-partite. *Pet.* 4. *Glands* 4, emarginate.—*Fertile fl. Cal.* 4-partite. *Pet.* 4. *Glands* 4, emarginate. *Germens* 4. *Caps.* many-seeded. p. 125.

Ord. VII. Enneandria. *9 stamens.*

11. Mercurialis. *Barren fl. Perianth* single, tripartite. *Stam.* 9—12. *Anthers* of 2 globose lobes.—*Fertile fl. Perianth* single, tripartite. *Styles* 2. *Caps.* 2-celled; *cells* 1-seeded. p. 291.

12. Hydrocharis. *Flowers* spathaceous.—*Barren fl. Cal.* in 3 deep segments. *Cor.* of 3 petals. *Stam.* 9, in 3 rows, within which are 3 imperfect *styles*.—*Fertile fl. Cal.* in 3 deep segments. *Pet.* 3. *Styles* 6, each with 2 *stigmas*. *Caps.* inferior, coriaceous, roundish, 6-celled, many-seeded. p. 362.

(Ord. Decandria: see Silene in Cl. X. Ord. Icosandria: see Rubus and Fragaria in Cl. XII. Ord. Polyandria: see Stratiotes in Cl. XXI.; see Populus in Ord. VI.)

Ord. VIII. MONADELPHIA. *Stamens combined.*

13. JUNIPERUS. *Barren fl. Scales* of the *catkin* subpeltate. *Perianth* 0. *Stam.* 4—8, 1-celled.—*Fertile fl. Scales* of the *catkin* few, united, at length fleshy, and surrounding the 3-seeded *berry*. p. 330.
14. TAXUS. *Barren fl. Catkins* oval, scaly at the base. *Stam.* numerous. *Anthers* peltate, 6—8-celled; *cells* opening beneath. —*Fertile fl.* solitary, scaly at the base. *Style* 0. *Drupe* fleshy, perforated at the extremity. p. 330.

CLASS. XXIII. POLYGAMIA.[1] *Stamens and pistils separate or united, on the same or on different plants, and having the perianth of the fertile flower different from that of the sterile one.*

Ord. I. MONŒCIA. *The two kinds of flowers on the same plant.*

1. ATRIPLEX. *Barren fl.* and *united fl. Perianth* single, 5-partite, inferior. *Stam.* 5. *Style* bipartite.—*Pistilliferous fl. Perianth* single, of 2 valves. *Stam.* 0. *Fruit* 1-seeded, covered by the persistent enlarged perianth. p. 277.

CLASS XXIV. CRYPTOGAMIA.[2] *Stamens and pistils not evident.*

This class corresponds with the third class of the natural arrangement ACOTYLEDONES, which see p. 435.

[1] From πολυς, *many*, and γαμη, in allusion to the stamens and pistils being sometimes separated in the same or in different plants.

[2] From κρυπτος, *concealed*, and γαμη, in allusion to the obscure mode of fructification.

ADDITIONS AND CORRECTIONS.

Page 26. Barbarea.

Of this genus, Mr. Borrer has added *B. arcuata* Reich. and *B. stricta* of Andrzejowski to the British list. As I have only seen an authentic native specimen of the latter, and that without fruit and without radical leaves, I shall give Koch's character of the two, as well as that of *B. vulgaris*, of which Steudel, in his *Nomenclator*, considers them to be varieties.

1. B. *vulgaris* Br.; lower leaves lyrate, the terminal lobe very large nearly round or ovate somewhat cordate at the base, the side ones quadrijugate, the upper pair as broad as the transverse diameter of the terminal lobe, uppermost leaves undivided obovate toothed, racemes compact in bud, younger pods obliquely such. *Koch Fl. Germ.* p. 36; *Reichenb. Crucif.* tab. 47. n. 4356.

2. B. *arcuata* Reichenb.; lower leaves lyrate, terminal lobe very large nearly round or ovate subcordate at the base, the side ones quadrijugate, the upper pair as broad as the transverse diameter of the terminal lobe, uppermost ones undivided obovate toothed, racemes lax in bud, younger pods from a nearly horizontal pedicel ascending everywhere patent. *Koch* l. c. p. 36; *Reichenb. Crucif.* tab. 48. n. 4357. B. Taurica *DC.* B. vulgaris β. *Steud. Nomencl.*

Llangollen, Wales: *W. Borrer, Esq.*

3. B. *stricta* Andrz.; lower leaves lyrate, the terminal lobe very large oblongo-ovate, the side ones bi-trijugate very small, intermediate ones at the base lyrate and cut, uppermost ones undivided obovate repando-dentate, petals oblong-cuneate one and a half time longer than the calyx. *Koch* l. c. p. 36; *Reichenb. Crucif.* tab. 47. n. 4355. B. Iberica *DC.* B. parviflora *Fries.* B. vulgaris γ. *Steud. Nomencl.*

All along the rail-roads, with some short intervals, from near Sheffield to near Halifax; near York (where *Mr. J. Backhouse* also finds it); and between the Weedon and Blissworth stations in Northamptonshire: *Wm. Borrer, Esq. Fl.* June. ♂ (?)—Of this Mr. Borrer observes, that "it is, in appearance, so very different (more, as Fries says, than *B. præcox*) from *B. vulgaris*, that I am surprised it has escaped notice." My own Herbarium, however, exhibits so many intermediate forms, that I cannot feel satisfied the three now mentioned should constitute distinct species.

Page 50. Stellaria media.

Mr. James Drummond writes from the Swan River, that previous to his leaving Ireland he found near Cork a remarkable var. of *Stellaria media*, or probably a distinct species. It differs from the common Chickweed in not being more than half its usual size, in being perfectly apetalous, in having the sepals covered with long white down, the seeds much thinner in proportion to their diameter, in being smoother, and of a lighter brown colour. It differs also in habit, growing more upright and bearing the flowers more in loads; but it is furnished with the double row of hairs on the stem. In the number of stamens, in the form of the seeds, and a good deal in habit, it

accords with *Holosteum umbellatum*. It is not uncommon on old walls, roofs of thatched houses, and sometimes on dunghills; only appearing in the early spring.

Page 273. PLANTAGO LANCEOLATA.

Add. var. *altissima*; spikes elongated cylindrical. P. lanceolata β. *DC.; Koch Fl. Germ.* p. 597. P. altissima *Linn.*

Lamb islet, bay of Dublin: *R. Ball, Esq.*; "growing with *P. lanceolata*, yet appearing very different." Still I agree with DeCandolle and Koch in referring it to a form of *P. lanceolata*, differing in its more luxuriant growth and very long and narrow spikes.

Page 330. TAXUS BACCATA.

Under this species is noticed the *Florence-Court*, or *Irish Yew*. F. Whitla, Esq., of Belfast, has been investigating the history of this beautiful tree, now so common in our gardens, and has kindly sent me the following extract of a letter from Lord Enniskillen, the noble proprietor of Florence Court, on the subject. "About eighty or a hundred years ago," his Lordship says, "as far as I can make out, a tenant on the estate found two of these yews growing wild on the mountain near Benoughlin, amongst Juniper bushes. These he dug up, and, bringing one to Florence Court, planted the other in his own garden, where it still remains. From the one brought to Florence Court, all the plants now in existence originated. I spoke yesterday to Willis, the grandson of the original finder, who told me that about twelve years ago he detected a small plant in the same spot as the original two were found on. This he transplanted, but it died. I intend in the spring to make search for more." Mr. Whitla has collected many other interesting particulars respecting this and the common Yew of Ireland, which it is to be hoped he will ere long lay before the public.

Page 348. ALLIUM CARINATUM.

Omit the locality "near Dublin," given on the authority of the late Dr. Scott, but where there is reason to suppose it was not found, and add "Coast of Galway, near Roundstone, and on Arran, Ireland: *Mr. W. M'Calla.* Fine specimens of this, between 4 and 5 feet high, were sent to Mr. Whitla, under an impression that it was *A. arenarium*, but this latter gentleman and Dr. Scouler have rightly determined it to be the true *carinatum*. Mr. Whitla has obligingly sent me a noble specimen from the above locality.

Page 420. ERIOPHORUM GRACILE.

Mr. Borrer has just communicated to me specimens of the "true *Eriophorum gracile* Koch, the Croft plant of Woods (l. c.), the place of which I believe nobody has been able to find again. In the Museum Garden at York, *E. angustifolium* (brought, as Mr. Baines told me, *he believed*, from Croft) stands for it. Mine is from the White-moor pond (now dry), between Guildford and Woking, where I found it early in August in the greatest abundance. The character of the leaf and culm are lost in drying. The latter is obtusely trigonal. The leaf is very peculiar, being very acutely and almost equilaterally triquetrous, with the upper side concave:" *Borrer.* Mr. A. Wedell, an accurate Parisian botanist, assures me that the three legitimate species of *Eriophorum*, of the division "*spikes* many," *E. polystachion* (probably *pubescens*, Sm.), *E. angustifolium*, and *E. gracile*, may at all times, and with certainty, be distinguished by the peduncles of the first being *scabrous*, of the second *smooth* and *glabrous*, of the third *tomentose*.

BRITISH FLORA.

CLASS I.

DICOTYLEDONOUS[1], OR EXOGENOUS, PLANTS.

Cellular and vascular. *Stem* formed of two distinct portions, *Wood* and *Bark;* the former containing pith in the centre, from which diverge the *medullary rays*, and increasing by new layers on the outside; the latter by new layers within. *Leaves* with the nerves much branched and reticulated. *Flowers* usually with a double perianth, the parts often arranged in a quinary manner. *Embryo* with two opposite *cotyledons*, rarely more, and then verticillate.

Sub-Class I. THALAMIFLORÆ. (ORD. I.—XXII.)

Petals many, distinct, and, as well as the stamens, inserted upon the receptacle (not upon the calyx); hence hypogynous, from *ὑπο, beneath,* and *γυνη,* the *pistil.*

ORD. I. RANUNCULACEÆ *Juss.*

Calyx of mostly 5, rarely 3 or 6, pieces or sepals, frequently deformed. *Petals* 5 or more, often deformed, sometimes wanting. *Anthers* adnate, mostly reversed. *Ovaries* 1 or many, 1- or many-celled. *Fruit* mostly of several 1- or many-seeded *carpels*, rarely a *Berry*. *Embryo* straight, in the base of a horny *albumen*. —Herbs *or* Shrubs. Leaves *often divided, with more or less dilated stalks. Acrid and poisonous, some of them eminently so, especially* Aconitum.

* *Ovaries (and fruit) short, 1-seeded.* (Gen. 1—6.)

1. CLÉMATIS *Linn.* Traveller's Joy.

Cal. of 4—6 sepals. *Pet.* 0. *Pericarps* terminated by a long, mostly feathery, awn. — Named from *κλημα*, the *shoot of a vine*, which its long branches somewhat resemble.

1. C. *Vitálba*, L. (*common Traveller's Joy*); stem climbing, leaves pinnate, leaflets cordato-ovate inciso-lobate, petioles twining, peduncles rather shorter than the leaves. *E. Bot.* t. 612; *Ed. Cat.* p. 4.

[1] From *δις, twice* or *double,* and *κοτυληδων,* the *cotyledon.*

Hedges; abundant in a calcareous soil. Rare in the north. *Fl.* May, June. ♄. — *Petioles* acting as tendrils. *Flowers* greenish-white, fragrant. *Fruit* very beautiful, with long white feathery *awns*.

2. Thalíctrum *Linn.* Meadow-Rue.

Cal. of 4—5 sepals. *Cor.* 0. *Pericarps* without awns. — Named from θαλλω, *to be green* or *flourishing*.

1. T. *alpínum* L. (*alpine Meadow-Rue*); stem simple nearly leafless, raceme simple terminal, flowers drooping. *E. Bot.* t. 262; *Ed. Cat.* p. 14.

Mountains in the north of England, Wales, and in Scotland, frequent. *Fl.* July. ♃. — *Root-leaves* upon long stalks, biternate; *leaflets* roundish, crenate or lobed, dark-green. *Stam.* 10—12. *Germens* 2—4. *Flowers* few.

2. T. *minus* L. (*lesser Meadow-Rue*); leaves 3—4-pinnate, leaflets roundish glabrous trifid and toothed glaucous beneath, panicle diffuse its branches alternate or whorled, flowers mostly drooping. *Jacq. Austr.* t. 419; *E. Bot.* t. 11. (*excellent*); *Ed. Cat.* p. 14; *E. Fl.* v. iii. p. 41.—β. segments of the leaves much acuminated. — γ. *majus*. T. majus *Jacq.*: *E. Bot.* t. 611.

Stony pastures, not unfrequent, especially in limestone or chalky countries. Sand hills, on the coast near S. Shields and Yarmouth.—β. Principally in the north of England and in Scotland. *Fl.* June, July. ♃. — *Stem* zigzag, about a foot high, mostly glaucous. *Leaflets* small. *Fruit* narrow, ovate, sulcate. There are assuredly no permanent characters by which the *T. majus* of Jacq. can be distinguished from the Linnæan *T. minus*.

3. T. *flávum* L. (*common Meadow-Rue*); stem erect branched furrowed, leaves bipinnate, leaflets broadly obovate or wedge-shaped trifid, panicle compact subcorymbose, flowers erect. *E. Bot.* t. 367; *Ed. Cat.* p. 14. — β. leaflets broadly ovate almost rotundate.

Banks of rivers and ditches, and in moist meadows. Less frequent in Scotland, and principally found in the vale of Clyde. — β. Isle of Bute. *Fl.* June, July. ♃. — 2—3 ft. high. *Flowers* very numerous, yellow. Lobes of the *leaves* varying in breadth. In β. the *leaflets* are much broader than usual.

3. Anemóne *Linn.* Anemone.

Involucre of 3 divided leaves, more or less remote from the flower. *Cal.* petaloid, of 5—9 sepals. *Cor.* 0. — Named from ανεμος, the *wind*; because many of the species grow in very exposed situations.

1. A. *Pulsatílla* L. (*Pasque-flower Anemone*); leaves as well as the involucre with doubly pinnatifid linear segments, flower inclined, sepals 6, pericarps with long feathery awns. *E. Bot.* t. 51; *Ed. Cat.* p. 1.

Dry chalky pastures, in several parts of England. *Fl.* Apr. May. ♃. — *Flowers* purple, externally silky, very handsome.

2. A. *nemorósa* L. (*Wood Anemone*); leaves ternate, leaflets lanceolate lobed and cut, involucre similar to them petiolate, stem single-flowered, sepals 6 elliptical, pericarps awnless. *E. Bot.* t. 355; *Ed. Cat.* p. 1.

Moist woods and pastures, and on the high mountains. *Fl.* April, May. ♃.—*Flowers* white, tinged with purple outside.

3. A. **Apennína* L. (*blue Mountain Anemone*); leaves triternate, segments lanceolate cut and toothed, involucres petiolate ternate and cut, sepals 12—14, pericarp without awns. *E. Bot.* t. 355; *Ed. Cat.* p. 1.

Wimbledon woods, growing with *Eranthis hyemalis;* near Harrow; Luton Hoe, Bedfordshire; and near Berkhamstead, Essex. *Fl.* April. ♃.— *Flowers* light and bright blue.

4. A. **ranunculoídes* L. (*yellow Wood Anemone*); leaves ter- or quinate, leaflets subtrifid cut and toothed, involucres shortly stalked ternate cut and toothed, sepals 5—6 elliptical, pericarps without awns. *E. Bot.* t. 1484; *Ed. Cat.* p. 1.

Woods, rare; King's Langley, Herts; and Wrotham, Kent. *Fl.* April. ♃.— *Flower* brightish yellow.

4. Adónis *Linn.* Pheasant's Eye.

Cal. of 5 sepals. *Pet.* 5—10, without a nectary. *Pericarps* without awns. — Name: its deep red colour suggested the idea of its being stained by the blood of *Adonis*, who was killed by a boar while hunting.

1. A. **autumnális* L. (*Corn Adonis* or *Pheasant's Eye*); petals concave connivent scarcely longer than the glabrous calyx, pericarps reticulated collected into an ovate head, stem branched. *E. Bot.* t. 308; *Ed. Cat.* p. 1.

Amongst corn, about London, Norfolk, Gloucestershire, Glasgow, and Dublin. *Fl.* Sept. Oct. ☉. — *Leaves* thrice compound, with linear segments. *Petals* bright scarlet, such as might well be supposed to have sprung from the blood of Adonis.

5. Myosúrus *Linn.* Mouse-tail.

Cal. of 5 sepals, prolonged at the base. *Pet.* 5, their *claws* tubular (nectariferous). *Pericarps* numerous, indehiscent, 1-seeded, collected upon a very long columnar receptacle. — Name μυς, μυος, a *mouse*, and ουρα, *a tail;* from the elongated receptacle of the germens or seed-vessels.

1. M. *mínimus* L. (*common Mouse-tail*). *E. Bot.* t. 435; *Ed. Cat.* p. 9.

Corn-fields and waste places in England, in a gravelly or chalky soil. N. of Ireland: *Mr. Niven. Fl.* May. ☉. — A small plant, from 2—6 inches in height. *Leaves* erect, narrow, linear-spathulate, fleshy. *Scapes* slender, bearing a single, small, greenish flower. *Receptacle* with numerous oblong *germens*, at first short, then lengthening out to from 1—3 inches, and resembling a mouse's tail.

6. RANÚNCULUS *Linn.* Crowfoot, Spearwort.

Cal. of 5 (rarely 3) sepals. *Pet.* 5 (rarely many), with a nectary at the base. *Pericarps* without awns. [In the pore or nectary of the petals of this, and of *Myosurus*, we observe an affinity with the tubular petals of *Helleborus*, and even of *Trollius;* only, in the two latter, the petals are more altered in shape.] — Named from *Rana*, a *frog;* these plants delighting to grow where frogs abound.

* *Pericarps transversely wrinkled. Petals white.*

1. R. *aquátilis* L. (*Water Crowfoot*); stem submersed, leaves capillaceo-multifid, floating ones tripartite their lobes cut, petals obovate larger than the calyx, pericarps glabrous or hispid. *E. Bot.* t. 101; *Ed. Cat.* p. 11. — β. all the leaves capillaceo-multifid. R. pantothrix *DC.* — γ. all the leaves orbicular in their circumscription, deeply cut into fine capillary segments. R. circinatus *Sibth.: Ed. Cat.* p. 11. R. cæspitosus *DC.* δ. leaves capillaceo-multifid, the segments very long. *L., Sm.* R. fluitans *Lam.: Ed. Cat.* p. 11.

Lakes, ditches and rivers; abundant. *Fl.* May, June. ♃. — Varies much in the length of the *stems* and form of the *leaves*, according to the depth and stillness of the water.

2. R. *hederáceus* L. (*Ivy Crowfoot*); stem creeping, leaves roundish kidney-shaped with 3—5 rounded entire lobes, petals small scarcely longer than the calyx, stamens 5—10, pericarps glabrous. *E. Bot.* t. 2003; *Ed. Cat.* p. 11.

Wet places, shallow pools of water, and where water has stood. *Fl.* through the summer. ♃.

** *Pericarps not transversely wrinkled. Nectary with a small scale. Fl. yellow* (*except* R. alpestris).

† *Leaves undivided.*

3. R. *Língua* L. (*great Spear-wort*); leaves lanceolate subserrated sessile semiamplexicaul, stem erect glabrous. *E. Bot.* t. 100; *Ed. Cat.* p. 11.

Marshes, sides of lakes and ditches; not very general. *Fl.* July. ♃. — *Stem* 2—3 feet high. *Flowers* large, handsome.

4. R. *ophioglossifólius* Vill. (*Serpent's-Tongue Spear-wort*); leaves oblong sessile, lower ones cordato-ovate petiolate, stem erect many-flowered, carpels obliquely ovate with a short point margined, the sides tubercled. *Bab. in E. Bot. Suppl.* t. 2833; *Fl. Sarn.* p. 3; *Ed. Cat.* p. 11.

St. Peter's Marsh, Jersey: *Rev. C. Babington. Fl.* June. ☉.—A very distinct and interesting species, allied to the preceding. *Flowers* small. Heads of fruit large in comparison.

5. R. *Flámmula* L. (*lesser Spear-wort*); leaves linear-lanceolate nearly entire petiolate, the lower ones ovato-lanceo-

late, stem declined at the base and rooting. *E. Bot.* t. 387; *Ed. Cat.* p. 11. — β. much smaller, stem creeping filiform. R. reptans, *Lightf. Scot.* p. 289. t. 1.

Sides of lakes and ditches, abundant. — β. Margins of the Highland lakes, in barren stony places. *Fl.* July, Aug. ♃.

6. R. **gramíneus* L. (*grassy Crowfoot*); leaves linear-lanceolate striated entire, stem erect glabrous, scale of the nectary tubular, root fascicled. *E. Bot.* t. 2306; *Ed. Cat.* p. 11.

" Brought from N. Wales by Mr. Pritchard." *With.* *Fl.* June. ♃.

7. R. *Ficária* L. (*Pilewort Crowfoot, lesser Celandine*); leaves cordate petiolate angular or crenate, sepals 3, petals 9. *E. Bot.* t. 584; *Ed. Cat.* p. 11. Ficaria ranunculoides *DC.*

Pastures, woods, bushy places, &c. *Fl.* April, May. ♃. — *Root* consisting of many long fasciculated *tubers*. *Leaves* petiolate, 2—3 on the 1-flowered *stem*. *Flowers* glossy, yellow.

†† *Leaves divided. Pericarps smooth. Perennial.*

8. R. *alpéstris* L. (*alpine white Crowfoot*); leaves glabrous orbicular deeply 3-lobed, lobes at the extremity crenate, stem mostly 1-flowered, petals obcordate (white). *E. Bot.* t. 2390; *Ed. Cat.* p. 11.

Sides of rills on the Clova mountains: *G. Don.* *Fl.* May. ♃. — 4—5 inches high. *Leaves* mostly radical, petiolate. *Flowers* white, large.

9. R. *aurícomus* L. (*Wood Crowfoot*); leaves glabrous, radical ones reniform 3-partite and cut, stem-leaves divided to the base into linear subdentate segments, calyx pubescent shorter than the petals, head of fruit globose. *E. Bot.* t. 624; *Ed. Cat.* p. 11.

Woods and coppices, not unfrequent. *Fl.* April, May. ♃. — Not acrid, as are most of the other *Crowfoots*.

10. R. *scelerátus* L. (*Celery-leaved Crowfoot*); leaves glabrous, radical ones petiolate tripartite, lobes cut very obtuse, upper ones in 3 linear cut segments, calyx glabrous, pericarps collected into an oblong head. *E. Bot.* t. 681; *Ed. Cat.* p. 11.

Sides of pools and ditches. *Fl.* June. ♃. — *Stem* stout, succulent, 1—2 feet high. Lower *leaves* very broad and glossy. *Flowers* extremely small, pale yellow.

11. R. *ácris* L. (*upright Meadow Crowfoot*); calyx spreading, peduncles rounded (not furrowed), leaves tripartite their segments acute trifid and cut, upper ones linear. *E. Bot.* t. 652; *Ed. Cat.* p. 11.

Meadows, pastures and mountainous situations. *Fl.* June, July. ♃.

12. R. *répens* L. (*creeping Crowfoot*); calyx spreading, flower-stalks furrowed, scyons creeping, leaves with 3 petiolated

leaflets which are 3-lobed or 3-partite and cut. *E. Bot.* t. 516; *Ed. Cat.* p. 11.

Pastures, too frequent. *Fl.* June—Aug. ♃. — Well distinguished by its creeping *scyons.*

13. R. *bulbósus* L. (*bulbous Crowfoot*); calyx reflexed, peduncles furrowed, stem upright many-flowered, leaves cut into 3 petiolated leaflets which are 3-lobed or 3-partite and cut, root bulbous. *Ed. Bot.* t. 515; *Ed. Cat.* p. 11.

Meadows and pastures, frequent. *Fl.* May. ♃. — 1 ft. high, hairy. Lobes of the lower *leaves* subovate; upper leaves cut into linear segments.

††† *Leaves divided. Pericarps tuberculated or muricated. Annual.*

14. R. *hirsútus* Curt. (*pale hairy Crowfoot*); calyx reflexed, stem erect many-flowered hairy, leaves 3-lobed or 3-partite, lobes obtuse cut, root fibrous, pericarps margined and tuberculated. *E. Bot.* t. 1501; *Ed. Cat.* p. 11. R. Philonotis *Ehrh.*

Meadows and waste ground. *Fl.* June—Oct. ☉. — Varying extremely in size. When very small it is *R. parvulus.*

15. R. *arvénsis* L. (*Corn Crowfoot*); calyx spreading, stem erect many-flowered, leaves 3-cleft their lobes generally again 3-cleft into linear entire or bi-tridentate segments, pericarps muricated. *E. Bot.* t. 135; *Ed. Cat.* p. 11.

Corn-fields. *Fl.* June. ☉. — *Pericarps* very large and prickly. *Flowers* small, pale yellow. — Said to be extremely injurious to cattle.

16. R. *parviflórus* L. (*small-flowered Crowfoot*); stem spreading, leaves hairy 3-lobed and cut, peduncles opposite the leaves, calyx as long as the petals, pericarps muricated. *E. Bot.* t. 120; *Ed. Cat.* p. 11.

Corn-fields about London, Norwich, and in the S. and S. W. of England. Chelmsford. Hackfall. Ormeshead. Cork. Sand-hills between Beldoyle and Howth, Dublin. *Fl.* May, June. ☉. — Well distinguished by its spreading *stems*, lateral *flower-stalks*, and small narrow *petals*, one or two of which are often wanting.

** *Ovaries* (*and fruit*) *elongated, many-seeded.* (Gen. 7—14.)

7. CÁLTHA *Linn.* Marsh-Marigold.

Sepals 5, petaloid. *Pet.* none. *Follicles* several, compressed, spreading, with many seeds. — Named from καλαθος, a *cup*, which its flowers resemble.

1. C. *palústris* L. (*common Marsh Marigold*); leaves orbiculari-cordate or reniform crenate, calyx-leaves 5—6 oval. *E. Bot.* t. 506.; *Ed. Cat.* p. 3. — β. stem creeping, leaves cordato-triangular sharply crenate. C. radicans *Forst.* : *E. Bot.* t. 2175; *Ed. Cat.* p. 3.

Marshy places, common. — *β.* Scotland, especially in mountainous regions; but I have rarely seen it wild with leaves so decidedly triangular as a plant so called, and long cultivated in the Edin. Bot. Gard. *Fl.* March—June. ♃.

8. Tróllius *Linn.* Globe-flower.

Sepals 5, or many, coloured. *Pet.* 5, or many, small, linear, with an obscure depression above the contracted base. *Follicles* many-seeded. — Name said to be derived from "*troll* or *trolen*," a *ball* or *globe* in old German, and bearing the same meaning as our English word *Globe-flower*.

1. T. *Europæus* L. (*Mountain Globe-flower*); calyx of about 15 concave erect sepals, petals nearly as long as the stamens. *E. Bot.* t. 28; *Ed. Cat.* p. 14.

Moist mountain-pastures in the north of England and of Ireland, Wales and Scotland. *Fl.* June, July. ♃. — *Leaves* in 5 deep segments, which are again cut and serrated. *Flowers* large, handsome. *Petals* often partly concealed by the spreading of the *stamens*.

(*Eránthis hyemális* Salisb., the well-known *Winter-aconite* of our gardens and shrubberies, is enumerated in the *Edinb. Cat. of Br. Pl.*, p. 5. But I fear it can have no claim to a place in the *British Flora*.)

9. Helléborus *Linn.* Hellebore.

Cal. of 5 persistent sepals. *Pet.* 8—10, small, tubular, and nectariferous. *Follicles* nearly erect, many-seeded. — Name,— ελειν, *to injure*, and βορα, *food*, from the poisonous nature of the plant.

1. H. **víridis* L. (*green Hellebore*); stem few-flowered leafy, leaves digitate, cal. spreading. *E. Bot.* t. 200; *Ed. Cat.* p. 6.

Woods, thickets and hedges, especially in a chalky soil. Dunglass Glen and Laswade, Scotland. *Fl.* April, May. ♃. — 1 ft. high. *Leaves* annual, large, on a broad stalk; upper ones sessile; segments linear-lanceolate, serrated at the extremity. *Cal.* large, greenish-yellow. This and the following have been often employed medicinally, instead of the true *ancient* or *Greek Hellebore* (*H. officinalis* Sibth. and Smith).

2. H. **fœtidus* L. (*stinking Hellebore*); stem many-flowered leafy, leaves pedate, calyx converging. *E. Bot.* t. 613; *Ed. Cat.* p. 6.

Pastures and thickets, especially in chalky counties, in England. Blantyre and Barncluish; and by the Doune, Ayr, on the west, and near Anstruther, on the east of Scotland. *Fl.* Apr. ♃. — A bushy plant, 2 feet high. *Leaves* evergreen, uppermost ones gradually becoming *bracteas*. *Flowers* globose; *calyx* often tipped with a purple tinge. Fetid and powerfully cathartic.

10. Aquilégia *Linn.* Columbine.

Cal. of 5 sepals, deciduous, coloured. *Pet.* 5, terminating below in a horn-shaped spur, or nectary. — Named from *Aquila*, an *eagle*, whose claws the nectaries resemble.

1. A. **vulgáris* L. (*common Columbine*); spur of the petals incurved, capsules hairy, stem leafy many-flowered, leaves nearly glabrous, styles as long as the stamens. *E. Bot.* t. 97; *Ed. Cat.* p. 1.

Woods and coppices, in several places. *Fl.* June. ♃. — Inner *stamens* frequently imperfect.

11. Delphínium *Linn.* Larkspur.

Cal. coloured, deciduous, irregular, upper sepal produced at the base into a *spur*. *Pet.* 4; 2 upper ones with appendages included within the spur. — Named from *Delphinus*, or δελφιν, a *dolphin;* on account of the shape of the upper sepal.

1. D. **Consólida* L. (*Field Larkspur*); stem erect branched, flowers in lax racemes, petals combined, inner spur of one piece, pedicels shorter than the bracteas, capsule glabrous. *E. Bot.* t. 1839; *Ed. Cat.* p. 4.

Sandy or chalky fields; Suffolk, Kent. "About Cambridge, at Quay, the hills are quite blue with it; it also occurs red, pink, and white, and yet *Ray* does not mention it:" *Henslow*. Near St. Helier's, Jersey: *Mr. Babington*. *Fl.* June, July. ☉.

12. Aconítum *Linn.* Wolf's-Bane.

Cal. petaloid, irregular, upper sepal helmet-shaped; 2 upper petals or nectaries on long stalks, and concealed within the helmet-shaped leaflet. — Name derived, it is said, from *Acone* in Bithynia; or from ακονη, a *rock*, or *stone;*

> "Quæ quia nascuntur dura vivacia caute
> Agrestes *Aconita* vocant." *Ovidii Metam.*

1. A. **Napéllus* L. (*common Wolf's-bane* or *Monks'-hood*); upper sepal arched at the back, spur of the nectary nearly conical bent down, wings of the stamens cuspidate or none, lobes of the leaves cuneate pinnatifid, germens 3—5 glabrous or hairy. *DC. Forst. in E. Bot. Suppl.* t. 2730; *Ed. Cat.* p. 1.

Teme, Herefordshire. Below Staverton Bridge, Devon: *Mr. T. Clark*. About Mylon Bridge, Cornwall, most abundant: *Miss Warren*. "Undoubtedly wild" in several places in Denbighshire: *J. E. Bowman, Esq.* *Fl.* June, July. ♃.

13. Actæa *Linn.* Bane-berry.

Cal. of 4 sepals caducous. *Pet.* 4. *Berry* 1-celled. *Seeds* numerous.—Named from ακτη, the *Elder;* the leaves somewhat resembling those of *Elder*.

1. A. *spicáta* L. (*Bane-berry, or herb Christopher*); racème simple elongated, petals as long as the stamens, pedicels of the fruit slender. *E. Bot.* t. 918; *Ed. Cat.* p. 1.

Bushy places, especially in limestone tracts in Yorkshire; near Halifax. *Fl.* May. ♃. — 1—2 feet high. *Leaves* petiolate, 3-ternate; *leaflets* ovate, deeply cut and serrated.

14. Pæónia *Linn.* Pæony.

Cal. of 5 sepals. *Pet.* 5—10, concave. *Follicles* 2—5, with many *seeds*, and crowned with the bi-lamellated *stigmas*.—Named in honour of the physician *Pæon*, who is said to have cured Pluto with it of a wound received from Hercules.

1. P.* *corallína* Retz (*entire-leaved Pæony*); herbaceous, follicles downy recurved, leaves biternate glabrous, their segments ovate entire. *E. Bot.* t. 1513.

On the island called Steep Holmes, in the Severn. Said to have been found near Gravesend. *Fl.* May, June. ♃.

Ord. II. BERBERIDEÆ *Vent.*

Sepals 3—6, often coloured, in a double row and bracteated. *Petals* of the same or double that number, glandular at the base. *Stamens* opposite to the petals. *Anthers* 2-celled, opening by valves. *Ovary* 1-celled. *Style* short. *Fruit* mostly a *Berry*. *Seeds* 1—3 at the base of a lateral receptacle. *Albumen* fleshy. — Shrubs, *often spiny, or* herbs, *of temperate climates*. Leaves *ciliated on the serratures*.

1. Bérberis *Linn.* Barberry.

Cal. of 6 concave, coloured, inferior, deciduous sepals. *Pet.* 6, each with two glands at the base. *Berry* 2—3-seeded. — Name: *Berbêrys*, according to *de Théis*, is the Arabic name of this fruit.

1. B. *vulgáris* L. (*common Barberry*); racemes pendulous, spines 3-forked, leaves obovate ciliato-serrate. *E. Bot.* t. 49; *Ed. Cat.* p. 2.

Copses, woods, and hedges, in England and Scotland. Near Fermoy, Ireland. *Fl.* June. ♄. — *Shrub* with upright, twiggy *stems*. *Flowers* yellow, smelling disagreeably. *Stamens* highly curious in their formation and in their elastic property when touched. *Berries* oblong, a little curved, red, tipped with the black *style:* they are agreeably acid and much used for preserves.

2. Epimédium *Linn.* Barrenwort.

Cal. of 4 sepals, caducous. *Pet.* inferior, with an inflated *nectary* on the upper side. *Pod* 1-celled, 2-valved, many-seeded. — Name of obscure origin; applied by Dioscorides to some plant which grew plentifully in Media.

1. * E. *alpínum* L. (*alpine Barrenwort*); root-leaves none, stem-leaf twice ternate. *E. Bot.* t. 438.

Subalpine woods. Bingley woods, Yorkshire. On Carrock Fell and Skiddaw, Cumberland. Near Glasgow and Edinburgh. *Fl.* May. ♃. — *Stems* several from the same root, erect, simple, bearing each a triternate *leaf*, base of the *petiole* swollen; *leaflets* heart-shaped, extremely delicate, ciliated at the margin, hairy beneath, serrated; *lateral* ones inequilateral. *Panicle* shorter than the leaf, springing from the swollen

base of the petiole. *Flowers* reddish; *nectary* yellowish, resembling an inflated membrane. *Anthers* very curious, of 2 *cells*, opening by two *valves* which spring back upwards, and suffer the *pollen* to escape.

Ord. III. NYMPHÆACEÆ *De Cand.*

Sepals about 5, often gradually passing into the numerous *petals*, and these again into *stamens*, which arise from a fleshy disk surrounding more or less entirely the many-celled and many-seeded *ovary*. *Stigma* peltate, rayed. *Seeds* in a gelatinous aril. *Albumen* farinaceous. *Embryo* enclosed in a membranous bag. *Cotyledons* foliaceous. — *Aquatic* herbs, *with peltate or cordate* leaves *and magnificent* flowers. — The roots of *Nymphæa Lotus* are used as food. The East Indian *Nelumbium speciosum*, once an inhabitant of the Nile, and considered the κναμος, or *Egyptian Bean* of Pythagoras, is one of the most splendid of plants. Its seed-vessels are set apart in the hollows of a most curious obconical disk resembling a cornucopia; and these vegetating have been considered an emblem of fertility. The yellow *Nelumbium* of N. America is very similar to it. One plant of this family, found by Doctor Schomburgk in the Berbice (*Victoria regalis*), has the blossoms 15 inches and the leaves 6 feet *in diameter!*

1. Nymphæa *Linn.* White Water-Lily.

Cal. of 4—5 sepals. *Pet.* numerous, inserted, as well as the *stamens*, upon a fleshy disk or covering to the germen (so as apparently to arise from it). *Berry* many-celled, many-seeded, deliquescent; *seeds* in an *arillus*. — Name, the Νυμφαια of the Greeks, so called from its inhabiting the waters, as the *Nymphs* or Naiads were wont to do.

1. N. *álba* L. (*great White Water-Lily*); leaves cordate entire, stigma of 16 ascending rays. *E. Bot.* t. 160; *Hook.* in *Fl. Lond. N. S.* t. 140; *Ed. Cat.* p. 9.

Lakes and still waters, frequent. *Fl.* July. ♃. — In the quiet recesses of the Highland lakes, especially,—

> "The water-lily to the light
> Her chalice rears of silver bright."

2. Núphar *Sm.* Yellow Water-Lily.

Cal. of 5—6 sepals. *Pet.* numerous, inserted, as well as the *stamens*, upon the *receptacle*. *Berry* superior, many-celled, many-seeded. — Name, the Νουφαρ of Dioscorides, applied to this plant. The *Arabic* name is *Naúfar*, according to Förskal.

1. N. *lútea* Sm. (*common Yellow Water-Lily*); leaves cordate their lobes approximate, cal. of 5 sepals, stigma expanded entire with from 14—20 rays. *Hook. in Fl. Lond. N. S.* t. 141; *Ed. Cat.* p. 9. Nymphæa *L.*: *E. Bot.* t. 159.

Lakes and ditches, frequent. *Fl.* July. ♃. — *Flowers* large, smelling somewhat like brandy; which circumstance, in conjunction, as I presume, with its flagon-shaped seed-vessels, has led to the name *Brandy-bottle*, by which this plant is known in many parts of England.

2. N. *púmila* DC. (*least Yellow Water-Lily*); leaves cordate the lobes approximate, stigma (green) with 8 or 9 teeth, and as many (yellow) rays, fruit furrowed upwards. *Hook. in Fl. Lond. N. S.* t. 170; *Ed. Cat.* p. 9. N. Kalmiana *Hook. Scot.* i. p. 169 (*Aiton?*). N. minima *E. Bot.* t. 2292.

In several of the small Highland lakes. Mugdoch, near Glasgow. Chartners Lough, Northumberland. *Fl.* July, Aug. ♃. — I am even now far from certain that this ought not to be united with the American *N. Kalmiana*. All the differences I can find between the two I have fully detailed in *Fl. Lond.*

Ord. IV. PAPAVERACEÆ *Juss.*

Calyx of two deciduous sepals. *Corolla* of 4—8 *petals*. *Stamens* indefinite. *Ovary* 1. *Stigma* lobed or rayed. *Capsule* 1-celled, many-seeded. *Seeds* upon parietal, projecting receptacles, which form incomplete dissepiments. *Embryo* in the base of a fleshy *albumen*. — *Herbaceous* plants. Leaves *alternate*. — *Opium* is the product of this tribe, which largely afford a milky, acrid, and narcotic juice; while the seeds of all, except *Argemone Mexicana*, are mild and oleaginous.

1. Papáver *Linn.* Poppy.

Cal. of 2 caducous sepals. *Pet.* 4. *Stigma* sessile, radiated. *Caps.* superior; the *seeds* on parietal *receptacles* projecting towards the centre of the single *cell*, and escaping by pores beneath the permanent *stigma*. — Named because it is administered with *pap* (*papa*, in Celtic) to induce sleep.

1. P. *Argemóne* L. (*long-prickly-headed Poppy*); capsule clavate hispid ribbed, stem leafy many-flowered, leaves bipinnatifid. *E. Bot.* t. 643; *Ed. Cat.* p. 9.

Corn-fields, not unfrequent. *Fl.* June. ☉. — *Flowers* small. *Petals* narrow, scarlet.

2. P. *hýbridum* L. (*round-rough-headed Poppy*); capsule subglobose hispid furrowed, stem leafy many-flowered, leaves doubly pinnatifid. *E. Bot.* t. 43; *Ed. Cat.* p. 9.

Sandy and chalky fields in England, rather rare. Norfolk, Durham, Cornwall, Kent, Essex. Ormeshead. Ireland. *Fl.* July. ☉.

3. P. *dúbium* L. (*long-smooth-headed Poppy*); capsule glabrous oblong, stem many-flowered hairy, bristles of the flower-stalks appressed, leaves pinnatifid. *E. Bot.* t. 644; *Ed. Cat.* p. 9.

Corn-fields, not unfrequent. *Fl.* July. ☉. — *Stems* 1—2 feet high, hispid with spreading hairs. *Flowers* large. *Petals* broad, palish scarlet.

4. P. *Rhœas* L. (*common red Poppy*); capsule glabrous nearly globose, stem many-flowered bristly, its bristles and those of the flowerstalks spreading, leaves pinnatifid. *E. Bot.* t. 645; *Ed. Cat.* p. 9. — β. strigosum *Bönn., Bab.: Fl. Sarn.* p. 4; *Ed. Cat.* p. 9.

Abundant in corn-fields; but rare in the West of Scotland. *Fl.* June, July. ☉. — Distinguished from the last by its short *capsule* and the spreading hairs of the *flowerstalks*. *Pet.* broad, deep scarlet.

5. P. * *somníferum* L. (*white Poppy*); glaucous, capsule globose glabrous as well as the stem and amplexicaul leaves. *E. Bot.* t. 2145; *Ed. Cat.* p. 9.

In Norfolk, Cambridgeshire, and other places where the plant has been cultivated. Most abundant for miles a little eastward of the burning cliff, near Weymouth: *Rev. W. S. Bayton*. *Fl.* July. ☉. — *Flowers* generally white, with a purple eye; but varying much as to colour. From the unripe capsules, *opium* (from the Greek οπος, *juice*) is prepared.

2. Meconópsis *Viguier*. Welsh-Poppy.

Cal. of 2 caducous sepals. *Pet.* 4. *Style* evident. *Stigma* of few rays. *Capsule* opening at the top by 4—6 valves. *Receptacles* of the *seeds* filiform. — Named from μηκων, a *poppy*, and οψις, *resemblance*.

1. M. *Cámbrica* Vig. (*common Welsh-Poppy*); capsule glabrous, leaves mostly petiolate. *DC.: Ed. Cat.* p. 8. Papaver *L.: E. Bot.* t. 66.

Rare: rocky and shady places. Foot of Lidford cascade, Devon. Cheddar rocks, Somerset, called there "*yellow tulip*." N. Wales and Westmoreland. About Edinb. Rostrevor hill, Ireland. *Fl.* June. ♃. — *Leaves* on long stalks, pinnated, the pinnæ pinnatifid. *Flowers* large, yellow.

3. Glaúcium *Tourn.* Horned-Poppy.

Cal. of 2 sepals, caducous. *Pet.* 4. *Stigma* 2-lobed. *Pod* superior, linear, 2- (3- or 4-) celled, with as many valves. *Seeds* numerous, dotted. (*Glaucium* and *Roemeria* of De Cand.) — Named from the *glaucous* or sea-green hue of the stems and leaves.

1. G. *lúteum* L. (*yellow Horned-Poppy*); pod minutely tuberculated, cauline leaves amplexicaul sinuate, stem glabrous. *E. Bot.* t. 8; *Ed. Cat.* p. 6. Chelidonium Glaucium *L.*

Sandy sea-shores, frequent. *Fl.* July, Aug. ☉. — 1—2 feet high, very glaucous, much branched. *Leaves* scabrous. *Flowers* very large, handsome, succeeded by *pods* 6—10 inches long. *Dissepiment* spongy, as in the following species.

2. G.* *phœníceum* Gært. (*scarlet Horned-Poppy*); pod hispid, cauline leaves deeply pinnatifid and cut, stem hairy. *E. Bot.* t. 1433; *Ed. Cat.* p. 6. Chelidonium corniculatum *L.*

Said to have been found on Portland island, and in Norfolk. *Fl.* June, July. ☉. — *Petals* scarlet, with a black spot at their base.

3. G.* *violáceum* Juss. (*violet Horned-Poppy*); pod 3-valved with membranous dissepiments, leaves tripinnatifid the segments linear scabrous, stem glabrous. Chelidonium hybridum *L.: E. Bot.* t. 201. Roemeria *DC.: Ed. Cat.* p. 11.

Corn-fields, rare. Norfolk and Cambridgeshire. *Fl.* May, June. ☉.

4. CHELIDÓNIUM *Linn.* Celandine.

Cal. of 2 leaves caducous. *Pet.* 4. *Stigma* 2-lobed. *Pod* superior, linear, 1-celled, 2-valved. *Seeds* numerous, crested. — Named from χελιδων, a *swallow;* probably from the plant flowering about the time of the arrival of those birds.

1. C. *május* L. (*common Celandine*). *E. Bot.* t. 1581; *Ed. Cat.* p. 4. — β. leaflets and petals jagged. C. laciniatum *DC.*

Waste places, especially near towns and villages. *Fl.* May, June. ♃. — About 2 feet high, slightly hairy, brittle, full of a yellow fetid juice. *Leaves* pinnated, with about 5 decurrent *leaflets*, which are broadly ovate, lobed, and crenated. *Flowers* in long-stalked *umbels*, yellow, rather small. *Pod* long, somewhat turgid.

ORD. V. FUMARIACEÆ *DC.*

Sepals 2, deciduous. *Petals* 4, more or less united, one or two of them gibbous or spurred at the base. *Stamens* 6, in two bundles. *Ovary* 1. *Style* filiform. *Stigma* lobed. *Fruit* dry, indehiscent, with one or two *seeds;* or dehiscent with 2 valves and many seeds. *Seeds* glossy, with an *arillus* or *caruncle*, a fleshy *albumen* and *embryo* at the base. — Herbs *of temperate climates, with brittle stems and watery juice, slightly bitter and diaphoretic.*

1. FUMÁRIA *Linn.* Fumitory.

Cal. of 2 deciduous sepals. *Pet.* 4, one of them gibbous or spurred at the base. *Fruit* indehiscent, 1-seeded, the *style* deciduous. — Named from *fumus, smoke*, on account, it is said, of the smell.

1. F. *capreoláta* L. (*ramping Fumitory*); sepals broadly oval scarcely acute toothed at the base entire above twice as long as the globose fruit, bracteas a little shorter (about one third) than the fruit-bearing pedicel. *Arn.: E. Bot.* t. 943; *Ed. Cat.* p. 6.

Corn-fields and gardens, frequent. *Fl.* May—Aug. ☉. — A very variable plant. *Stems* generally climbing, sometimes only diffuse. *Leaves* bipinnate. *Leaflets* usually very broad; rarely, as about Edinburgh, narrow. On the continent, the fructiferous *pedicels* are mostly recurved, and occasionally so in the south of England; but in Scotland and Wales they are seldom more than patent. Best distinguished by its large *petals* and *calycine leaves*. — I am indebted to Mr. Arnott, who

has paid particular attention to this genus both in Britain and upon the Continent, for the characters and remarks upon this and the two following species.

2. F. *officinális* L. (*common Fumitory*); sepals ovato-lanceolate acute sharply toothed scarcely so long as the globose very abrupt or obcordate fruit, bracteas 2 or 3 times shorter than the fruit-bearing pedicel. *Arn.: Ed. Cat.* p. 6. — *α.* erect, very glaucous, leaflets narrow. *Arn. MSS.* F. officinalis, *E. Bot.* t. 589. — *β.* diffuse or climbing, green, leaflets broad. *Arn. MSS.* F. media *DC.*

α. In dry fields and road-sides, common. — *β.* also frequent, in highly cultivated fields and gardens. *Fl.* through the summer. ☉. — The *F. media*, of De Candolle does indeed, at first sight, appear to be distinct from the more upright state of *officinalis*, and even to approach nearer to *F. capreolata:* but the *flowers* and *calyx* are scarcely more than half the size of the latter; and it is very constant to these characters.

3. F. *parviflóra* Lam. (*least-flowered Fumitory*); sepals very minute, fruit globose slightly pointed, bracteas at first as long as the flower, afterwards about as short as the fructiferous pedicel, leaflets linear channelled. *Arn.* — *α.* flowers rose-coloured, leaves of a lively or yellowish-green. *Arn. MSS.* F. parvif. *E. Bot.* t. 590. F. Vaillantii *Ed. Cat.* p. 6. — *β.* flowers white tipped with dark purple, leaves glaucous. *Arn. MSS.* F. parvif. *DC.* F. leucantha *Viv.*

α. Fields; rare. Woldham, near Rochester, and near Epsom. In newly turned up ground for building, at Hill-side, north of the Calton Hill, Edinburgh. — *β.* Brookham, Surrey. Mr. Waddel's grounds at Hermitage, near Leith. *Fl.* Aug. Sept. ☉. — The more common of these two *vars.* is that with white fls. Viviani is not quite correct, when he says there is no apiculus to the fruit of his *F. leucantha.* It exists on all the specimens found about Montpellier. The purple or rose-colour *var.* comes very near *F. Vaillantii;* and perhaps is the *F. Vaillantii* of Prof. Henslow in *Loud. Nat. Mag.* vol. v. p. 88, as it is of *Ed. Cat.* p. 6.

4. F. *micrántha* Lag. (*small-flowered Fumitory*); sepals peltate orbicular somewhat cordate at the base, inciso-dentate at the margin concave at the back, about twice shorter than the corolla and one and a half or twice broader, fruit globose subapiculate, bractea linear spathulate acute about equal in length with the pedicel, segments of the leaves narrow linear grooved the ultimate ones very short. *Arn. in Hook. Ic. Pl.* t. 363. F. calycina *Bab. in 4th Rep. Ed. Bot. Soc.* p. 34.

About Edinburgh: *D. Steuart, Esq.* Since found in several localities in the E. of Scotland. ☉.

2. Corýdalis *De Cand.* Corydalis.

Cal. of 2 small, deciduous sepals. *Pet.* 4, one of them gibbous or spurred at the base. *Pod* 2-valved, compressed,

many-seeded. — Named from κορυδαλις, the Greek name for the *Fumitory*, with which the present genus was, till lately, united.

1. C.* *sólida* (*solid-rooted Corydalis*); stem simple erect with a scale beneath the lower leaf, leaves 3—4 biternate their leaflets cuneate or oblong and as well as the bracteas cut, root solid. *E. Bot.* t. 1471; *Ed. Cat.* p. 4. Corydalis bulbosa *DC.* Fumaria Halleri *Willd.*

Groves and thickets: at Kendal (an old garden). Wickham, Hampshire; and near Birmingham. *Fl.* April, May. ♃. — *Flowers* large, purplish; *leaves* glaucous.

2. C.* *lútea* Lindl. (*yellow Corydalis*); stem angular erect, leaves bipinnate, leaflets broadly cuneate cut or trifid, bracteas minute, pods nearly cylindrical shorter than the pedicels. *Ed. Cat.* p. 4. Fumaria lutea *Linn. Mant.: E. Bot.* t. 588; *E. Fl.* vol. iii. p. 253. Corydalis capnoides β. lutea *DC.*

On old walls. Near Castleton, Derbyshire; Fonntain's Abbey, Yorkshire. *Fl.* May. ♃. — *Flowers* yellow.

3. C. *claviculáta* DC. (*white climbing Corydalis*); stem much branched climbing, leaves pinnate, pinnæ stalked ternate or pedate, leaflets elliptical entire, petioles ending in tendrils, pedicels very short scarcely so long as the minute bracteas. *Ed. Cat.* p. 4. Fumaria *L.: E. Bot.* t. 103.

Bushy and shady places, in gravelly or stony soil. In Scotland, most abundant on walls and roofs of houses, especially in the Highlands. *Fl.* June, July. ☉. — *Stems* long, very slender. Whole plant extremely delicate. *Flowers* small, pale yellow, almost white.

Ord. VI. CRUCIFERÆ[1] *Juss.*

Calyx of 4 sepals. *Petals* 4. *Stamens* 6, tetradynamous, alternate with the petals; 2 solitary, 4 in 2 pairs. *Ovary* and *Style* 1; *hypogynous glands* at the base of the stamens. *Pericarp* a *pouch* or *pod*, 2- rarely 1-celled, 2-valved, sometimes valveless, many-seeded. *Seeds* on marginal receptacles, without *albumen*. *Radicle* curved upwards towards the margin of the *cotyledons* (accumbent, o=), or against the back of one of them (incumbent, o‖). — Herbs. Leaves *alternate*. Flowers *generally in corymbs, which at length become racemes.* — A most important *Natural Order*, many of the plants which it contains being cultivated as esculents; the *Cabbage*, *Turnep*, *Mustard*, and *Cresses* of various kinds, *Horse-radish*, &c. They contain an essential oil, which renders them stimulating, while their seeds yield a fine and mild oleaginous fluid, as *Rape;* and they are antiscorbutic. The *Mustard-seed* is used for sinapisms. Several kinds contain sulphur and the basis of ammonia, nitrogen.

[1] The following arrangement of this order by Decandolle and others, from characters depending primarily upon the plicature of the embryo,

(The Linnæan divisions are here adopted, as being the most simple for the student.)

I. SILICULOSÆ. *Fruit a short pod or pouch.* (Gen. 1—16.)

1. Cakíle *Gært.* Sea-Rocket.

Pouch angular, of 2, 1-seeded, indehiscent joints; the upper joint deciduous, bearing an upright, sessile *seed*, the lower one (sometimes abortive) pendulous. *Cotyledons* accumbent (o=). — Name, — an old Arabic word, applied probably to this or some allied genus.

1. C. *marítima* Willd. (*purple Sea-Rocket*); joints of the pouch two-edged, the upper one with two teeth at the base,

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though it may in some respects be more natural, is full of difficulties to the young student, who, in innumerable instances, cannot be expected to have access to the seed in a fit state for examination. The following are the British Genera, thus arranged: —

Sub-Order I. PLEURORHIZÆ. (o⩵)

Tribe I. Arabideæ. (*Pod elongated. Dissepiment narrow. Valves flat or slightly keeled.*) 1. Matthiola. 2. Cheiranthus. 3. Nasturtium. 4. Barbarea. 5. Turritis. 6. Arabis. 7. Cardamine. 8. Dentaria.

Tribe II. Alyssineæ. (*Pouch ovate or oblong. Valves flat or concave, not keeled, parallel with the septum.*) 9. Königa. 10. Draba. 11. Cochlearia.

Tribe III. Thlaspideæ. (*Pouch with the dissepiment very narrow. Valves keeled or winged.*) 12. Thlaspi. 13. Hutchinsia. 14. Teesdalia. 15. Iberis.

Tribe IV. Cakilineæ. (*Seed-vessel jointed, each joint with one or more seeds.*) 16. Cakile.

Sub-Order II. NOTORHIZEÆ. (o‖.)

Tribe V. Sisymbrieæ. (*Pod elongated. Dissepiment narrow, with the valves concave or keeled.*) 17. Hesperis. 18. Sisymbrium (including *Alliaria*). 19. Erysimum.

Tribe VI. Camelineæ. (*Pouch with the dissepiment broad, the valves more or less concave.*) 20. Camelina.

Tribe VII. Lepidineæ. (*Pouch with the dissepiment very narrow. Valves keeled or concave.*) 21. Coronopus. 22. Capsella. 23. Subularia. 24. Lepidium.

Tribe VIII. Isatideæ. (*Pouch 1-celled, 1-seeded, with scarcely dehiscent, keeled valves.*) 25. Isatis.

Sub-Order III. ORTHOPLOCEÆ. (o >>.)

Tribe IX. Brassiceæ. (*Pod elongated. Dissepiment narrow.*) 26. Brassica. 27. Sinapis (including *Diplotaxis* DC.)

Tribe X. Velleæ. (*Pouch with the valves concave. Dissepiment broad.*) 28. Vella.

Tribe XI. Raphaneæ. (*Seed-vessel divided into transverse cells, and often jointed.*) 29. Crambe. 30. Raphanus.

leaves fleshy pinnatifid somewhat toothed. *Ed. Cat.* p. 3. Bunias Cakile *L.: E. Bot.* t. 231.

Sandy sea-shores, frequent. *Fl.* June, July. ⊙. — Bushy. *Branches* crooked, and, as well as the whole plant, succulent. *Flowers* purplish, rarely white. *Pouch* thick, fleshy, at length somewhat woody.

2. Crámbe *Linn.* Kale.

Pouch with the upper joint globose, indehiscent, deciduous, bearing one inverted *seed,* upon a stalk arising from the bottom of the cell; lower joint abortive, resembling a pedicel. *Cotyledons* conduplicate (o >>). — Name: κραμβος of the Greeks.

1. C. *marítima* L. (*Sea-Kale*); longer filaments forked, pouch pointless, leaves roundish sinuated waved toothed glaucous and as well as the stem glabrous. *E. Bot.* t. 1660; *Ed. Cat.* p. 4.

Sea-coast in sandy or stony soils, in various places; but not very general. *Fl.* June. ♃. — Root thick, fleshy. *Flowers* white. Well known as an excellent culinary vegetable when cultivated and blanched.

3. Corónopus *Gært.* Wart-cress.

Pouch 2-lobed, without valves or wings. *Seeds* solitary in each cell. *Cotyledons* linear, incumbent (o ‖). — Named from κορωνη, a *crow,* and πους, a *foot;* the cut leaves somewhat resembling a bird's foot.

1. C. *Ruéllii* Sm. (*common Wart-cress, Swine's-cress*); pouch undivided crested with little sharp points, style prominent. *E. Bot.* t. 1660. Senebiera Coronopus *DC.: Ed. Cat.* p. 13. Cochlearia *L.*

Waste ground, not unfrequent in England. Rare in Scotland, and mostly found about Edinburgh. *Fl.* June—Sept. ⊙. — A much branched, spreading weed. *Leaves* bipinnate, their segments linear. *Flowers* very small, white, in lateral, axillary *corymbs. Pouch* large in proportion to the flower, curiously crested.

2. C. *dídyma* Sm. (*lesser Wart-cress*); pouch emarginate of two wrinkled lobes, style very short. Senebiera didyma, *E. Fl.* v. iii. p. 180; *Ed. Cat.* p. 13. S. pinnatifida *DC.* Lepidium didymum, *E. Bot.* t. 248.

Waste ground near the sea, in the south and south-west of England only. About Exeter, Truro, Penryn, Milfordhaven. Shore near Caernarvon. South of Ireland. *Fl.* July. ⊙.

4. Isátis *Linn.* Woad.

Pouch 1-celled, 1-seeded, laterally compressed; *valves* keeled, eventually separating. *Cotyledons* incumbent; (o ‖). — Named from ισαζω, to *make even;* because it was supposed to have the property of reducing inequalities of the skin.

1. I. **tinctória* L. (*Dyer's Woad*); pouch obovato-oblong glabrous, radical leaves oblong crenate, those of the stem sagittate. *E. Bot.* t. 97; *Ed. Cat.* p. 7.

Cultivated fields, about Ely, Durham, &c. *Fl.* July ♂. — *Flowers* yellow. Cultivated for the sake of the blue dye which it yields, and used by the ancient Britons to paint their bodies.

5. Vélla *Linn.* Cress-rocket.

Pouch swollen, with a dilated, flat, winged *style*, twice as long as the *valves*. *Cotyledons* conduplicate (o > >). *Cal.* erect. — Named from *veler*, in Celtic, the *Cress*.

1. V. **ánnua* L. (*annual Cress-rocket*); leaves bipinnatifid, fruit pendulous. *E. Bot.* t. 1442; *Ed. Cat.* p. 14. Carrichtera Vellæ *DC.*

Sandy fields. Salisbury Plains: *Ray*. *Fl.* June. ⊙.

6. Thláspi *Linn.* Penny-cress.

Pouch laterally compressed, emarginate; *valves* winged at the back, many-seeded. *Cotyledons* accumbent (o=). — Named from θλαω, to *flatten*; on account, probably, of its compressed *seeds* or *seed-vessels*.

1. T. *arvénse* L. (*Mithridate Mustard* or *Penny-cress*); pouch orbicular with a broad longitudinal wing, seeds concentrically striated, leaves oblong arrow-shaped toothed glabrous. *E. Bot.* t. 1659; *Ed. Cat.* p. 14.

Fields and by road-sides, in various places; but not common. *Fl.* June, July. ⊙. — One foot high, branched above. *Flowers* extremely small, white. *Pouch* very large, with unusually broad wings.

2. T. *perfoliátum* L. (*perfoliate Penny-cress*); pouch obcordate, style included within the notch, cauline leaves cordate somewhat toothed glabrous. *E. Bot.* t. 2354; *Ed. Cat.* p. 14.

Rare. Limestone pastures. Burford, Oxfordshire: recently discovered growing abundantly at Upper Slaughter and the neighbourhood of Gloucestershire: *Rev. J. R. F. Billingsley*, and *E. F. Witts, Esq.* Common on stone walls about Kineton: *Rev. J. Walker*. *Fl.* April, May. ⊙.

3. T. *alpéstre* L. (*alpine Penny-cress*); pouch obovate retuse, cells 4—6-seeded, style exserted, stamens as long as the petals, cauline leaves cordato-sagittate, stem simple. *E. Bot.* t. 81; *Ed. Cat.* p. 14.

Limestone pastures in the north of England: Derbyshire and Yorkshire. Carnarvonshire. Glen Isla, Clova: *Dr. Graham*. *Fl.* June, July. ♃.

7. Capsélla *DC.* Shepherd's Purse.

Pouch laterally compressed, obcordato-cuneate; the *valves* sharply keeled, without wings, many-seeded. *Cotyledons* in-

cumbent (o ‖).— Name: the diminutive of *Capsula;* a *little capsule* or *box.*

1. C. *Búrsa-Pastóris* DC. (*common Shepherd's Purse*). Thlaspi *L.: E. Bot.* t. 1435.

Corn-fields and waste places, everywhere, most abundant. *Fl.* the whole summer. ⊙.— Very variable, from 3 inches to 1—2 feet high. Radical *leaves* more or less pinnatifid; cauline ones lanceolato-sagittate; all generally toothed and rough with hairs. *Flowers* small.

8. Hutchínsia *Br.* (not of *Agardh.*) Hutchinsia.

Pouch elliptical, entire; the *valves* keeled, without wings; *cells* 2-seeded. *Filaments* simple. *Cotyledons* accumbent (o=). *Br.*—Named in honour of the late *Miss Hutchins,* of Bantry, Ireland, who explored most successfully the Botany of her native country, and added many new species to its Cryptogamia.

1. H. *petræa* Br. (*Rock Hutchinsia*); leaves pinnate entire, petals scarcely longer than the calyx, pouch obtuse at both extremities, stigma sessile. *Ed. Cat.* p. 7. Lepidium, *E. Bot.* t. 111.

Limestone rocks, west of England, and as far as Yorkshire. Wall of Eltham church-yard, Kent. *Fl.* March, Apr. ⊙.— A small plant, 2—4 inches high.

9. Teesdália *Br.* Teesdalia.

Pouch emarginate; the *valves* keeled; the *cells* 2-seeded. *Filaments* having a little scale within at the base. *Cotyledons* accumbent (o =). *Br.*—Named in honour of *Mr. Robert Teesdale,* a Yorkshire botanist.

1. T. *nudicáulis* Br. (*naked-stalked Teesdalia*). *Ed. Cat.* p. 14. Iberis, *E. Bot.* t. 327.

Sandy and gravelly banks, in many places. *Fl.* May, June. ⊙.— *Leaves* almost entirely radical, lyrato-pinnatifid. *Stems* 2—4 inches high, with sometimes 1—2 small, entire or cut *leaves*. *Flowers* white, two of the *petals* longer than the other two.

10. Ibéris *Linn.* Candy-tuft.

Pouch emarginate; *valves* keeled and winged; *cells* 1-seeded. *Petals* unequal. *Cotyledons* accumbent (o =). *Br.*— Named from *Iberia,* or *Spain;* where many of the species grow.

1. I. **amára* L. (*bitter Candy-tuft*); herbaceous, leaves lanceolate acute somewhat toothed glabrous, flowers racemose. *E. Bot.* t. 52; *Ed. Cat.* p. 7.

Chalky fields, rare; not unfrequent in Oxfordshire and Berkshire. *Fl.* July. ⊙.— *Stems* spreading, often a foot high. *Leaves* very variable in their toothing. Whole plant, as its name implies, very bitter.

11. Lepídium *Linn.* Pepperwort.

Pouch with the *cells* 1-seeded; the *valves* keeled. *Petals* equal. *Cotyledons* incumbent (o ‖); rarely accumbent (o =). *Br.* — Name: λεπις, a *scale*, from the form of the little pouches.

1. L. *latifólium* L. (*broad-leaved Pepperwort*); leaves ovato-lanceolate undivided serrated or entire, pouch oval entire. *E. Bot.* t. 182; *Ed. Cat.* p. 7.

Wet shady places, near the sea and salt marshes; in Norfolk, Essex, and Yorkshire. Weems, in Fifeshire, and Donibristle, seat of Lord Murray: *Dr. Dewar*. *Fl.* July. ♃. — 2—3 feet high, branched, erect, with large *leaves*. *Flowers* numerous, small, in many terminal and axillary, clustered *racemes*.

2. L. **Drába* Br. (*Whitlow Pepperwort*); leaves amplexicaul broadly oblong or lanceolate entire or toothed, pouch cordate entire at the apex crowned with a style about its own length. *Hook. in E. Bot. Suppl.* t. 2683; *Ed. Cat.* p. 7. Cochlearia *L.*

Fields and hedges, rare. Swansea. At St. Peters and Ramsgate, Isle of Thanet. Left bank of the Dee below Chester: *J. E. Bowman*. *Fl.* June. ♃. — 8—10 inches to a foot high, branched, with large, distant *leaves* and almost umbellate *corymbs* of numerous small *flowers*. *Pedicels* very long. I received specimens many years ago gathered as wild, by the late Mr. James Turner, at Swansea; and in 1829 the Rev. M. J. Berkeley found it at the two places above-mentioned; "at the one, spread over the greater part of a clover field; at the other, growing on a road-side, and abundantly in waste ground on the other side of the hedge."

3. L. *ruderále* L. (*narrow-leaved Pepperwort*); flowers diandrous without petals, radical leaves pinnatifid, those of the branches linear entire, pouch emarginate patent. *E. Bot.* t. 1595; *Ed. Cat.* p. 7.

Waste places near the sea, and among rubbish. *Fl.* June. ☉. — *Stem* sometimes a foot high, much branched. *Seed-vessels* numerous. *Cotyledons* incumbent, as in most of this genus; whereas those of its very near affinity, *L. Virginicum*, are accumbent.

4. L. *campéstre* Br. (*common Mithridate Pepperwort*); pouch ovate emarginate winged rough with minute scales, style scarcely longer than the notch, cauline leaves sagittate toothed. *Ed. Cat.* p. 7. Thlaspi campestre *L.*: *E. Bot.* t. 1385.

Corn-fields and dry gravelly soils, not uncommon; in England and Scotland. *Fl.* July. ☉. — 10—12 inches high. *Stems* solitary, branched above. Lower *leaves* almost spathulate, all slightly pubescent, as well as the *racemes* and *pedicels*. *Pouch* curiously scaly.

5. L. *Smíthii* Hook. (*smooth Field Pepperwort*); pouch ovate emarginate winged glabrous quite smooth or occasionally very minutely scaly on the back, style much exserted beyond the notch, cauline leaves sagittate toothed. *Ed. Cat.* p. 7. L. hirtum

Hook. Scot. i. p. 195; *E. Fl.* v. iii. p. 167 (not *DC.*). Thlaspi hirtum, *Fl. Brit.* p. 604 (not *L.*); *E. Bot.* t. 1803.

Borders of fields and hedges in Norfolk and Suffolk; very common in Caernarvonshire and Anglesea. Frequent in Scotland. Warren Point, near Belfast, and about Dublin, plentiful. *Fl.* June, July. ♃ ? — 6—8 inches high. *Stems*, many from the same perennial, or perhaps biennial, root. Much resembling the last, but truly distinct, with a whiter and more abundant pubescence. *Stem* and *racemes* hairy. *Pod* with a much longer *style*, quite glabrous, and smooth or even; except that rarely, in the middle of the back, there are a few very minute scales. The true *L. hirtum**, of the south of France, is also very different from this, being smaller, more hairy and even shaggy all over, especially its *seed-vessels*, which are less truly ovate and considerably larger. Our plant seems not to be known on the Continent, and with us is probably often confounded with the preceding.

12. Cochleária *Linn.* Scurvy-grass.

Pouch oval or globose, many-seeded; the *valves* turgid. *Filaments* simple. *Seeds* not margined. *Cal.* patent. *Cotyledons* accumbent (o=). *Br.* — Name: *cochlear*, a *spoon*, from the shape of the leaves.

1. C. *officinális* L. (*common Scurvy-grass*); pouch globose, radical leaves petiolate cordato-reniform entire or sinuated, cauline ones sessile oblong sinuated. *E. Bot.* t. 351; *Ed. Cat.* p. 4.

Rocks and muddy places by the sea-coast; as well as on the elevated mountains. Dr. Hughes finds a *var.* with the leaves oblong, by no means heart-shaped. *Fl.* May, June. ⊙. — *Leaves* succulent, more or less entire; *cauline* ones semi-amplexicaul, their bases generally toothed.

2. C. *Grœnlándica* L. (*Greenland Scurvy-grass*); pouch globose, leaves kidney-shaped (or cordate) fleshy entire, uppermost oblong. *E. Bot.* t. 2403; *Ed. Cat.* p. 4. C. officinalis var., *Hook. Scot.* i. p. 195.

Sea-shores and Highland mountains. *Fl.* June, July. ⊙. — This has the *leaves* of the following, and the *pouch* of the preceding species; from which latter I fear it is not distinct. It is frequent on the Highland mountains, and is there more dwarfish.

3. C. *Ánglica* L. (*English Scurvy-grass*); pouch elliptical veiny, radical leaves petiolate cordate entire, cauline ones mostly sessile oblong more or less toothed near the base. *E. Bot.* t. 552; *Ed. Cat.* p. 4.

Muddy and rocky sea-shores and margins of salt rivers; frequent. Snowdon. *Fl.* May, June. ⊙. — Generally smaller than *C. officinalis*, with more entire *leaves* and elliptical *pouches*.

4. C. *Dánica* L. (*Danish Scurvy-grass*); pouch ovato-elliptical veiny, leaves all petiolate nearly deltoid. *E. Bot.* t. 697; *Ed. Cat.* p. 4.

Sea-coast in a stony and muddy soil, frequent. *Fl.* May. ⊙. — The smallest of the species, with very angular and stalked *leaves*.

[1] Rudely, but faithfully figured in *Bauhin, Pin.* vol. ii. p. 922.

5. C.* *Armorácia* L. (*Horse Radish*); pouch oblong, stigma dilated nearly sessile, radical leaves oblong on long footstalks crenate, cauline ones elongato-lanceolate serrate or entire. *E. Bot.* t. 2323. Armoracia rusticana, *Ed. Cat.* p. 2.

Said to be wild in the mountainous parts of the north of England; and mentioned as a native of Scotland, by *Sibbald;* but it is too often the outcast of gardens. *Fl.* May. ♃. — *Roots* long, running deep into the ground; well known at our tables, and esteemed for their pungent flavour. *Leaves* much veined. *Fruit* compressed, seldom perfect.

13. Subulária *Linn.* Awl-wort.

Pouch oval, pointless, many-seeded; *valves* turgid. *Cotyledons* incumbent (o ||), linear, curved. — Named from *subula,* an *awl;* the leaves being subulate or awl-shaped.

1. S. *aquática* L. (*Awl-wort*). *E. Bot.* t. 732; *Hook. in Fl. Lond. N. S.* t. 135; *Ed. Cat.* p. 13.

Shallow margins of alpine lakes, frequent. *Fl.* July. ♃. — *Roots* of numerous, long, white fibres. *Leaves* few, radical, awl-shaped, 1—3 inches long. *Scape* 2—4 inches high. *Flowers* small, which I have seen in perfection, though entirely submerged. *Pouch* nearly approaching that of *Draba,* but with more turgid or convex *valves. Embryo* with its *cotyledons* linear, long, and the curvature takes place above the base of the cotyledons, not at the very base as in most other *Cruciferæ.*

14. Drába *Linn.* Whitlow-grass.

Pouch entire, oval (or oblong); *valves* plane or slightly convex; *cells* many-seeded. *Seeds* not margined. *Cotyledons* accumbent (o =). *Filaments* simple. (*Draba* and *Erophila* DC.) — Named from δραϵη, *acrid,* as are the leaves of many of this tribe.

1. D. *vérna* L. (*common Whitlow-grass*); scapes naked, petals deeply cloven, leaves lanceolate somewhat toothed hairy. *E. Bot.* t. 586; *Ed. Cat.* p. 5. Erophila vulgaris *DC.* — β. pouch swollen.

Frequent on walls, rocks, and dry banks. — β. abundant on shelving rocks on Ben Lawers, above the lake. *Fl.* March—May. ☉. — The *var.* β. is a very singular one, which I have watched for many successive years in the above station, and never found it to vary, but always to have the pouch as much inflated as that of *Subularia.* Nor is it altered by cultivation from seed in a garden.

2. D. *aizöídes* L. (*yellow alpine Whitlow-grass*); scapes leafless glabrous, petals slightly notched twice the length of the calyx, pouch with a long style, leaves lanceolate rigid glossy keeled and ciliated. *E. Bot.* t. 1271; *Ed. Cat.* p. 5.

Walls and rocks near Swansea, S. Wales. *Fl.* March, April. ♃. — Remarkable for its bright yellow *flowers,* and glossy *leaves* margined with hairs.

3. D. *rupéstris* Br. (*Rock Whitlow-grass*); scape leafless or

rarely with one leaf, petals undivided, pouch oblongo-oval tipped with a very short style, leaves plane lanceolate hairy. *Hook. Scot.* i. p. 196; *Ed. Cat.* p. 5. D. hirta, *E. Bot.* t. 1338 (not *Linn.*).

Mountain summits: rare. Upon Ben Lawers and Cairngorum, Scotland. Ben Hope. *Fl.* July. ♃. — The slender, perennial *root* penetrates deep among mosses and the crevices of rocks, bearing above many short *branches*, each crowned with a tuft of lanceolate, soft, plane, entire, or rarely obscurely toothed, hairy *leaves;* their margins ciliated; the hairs mostly simple, sometimes branched, on the surface not unfrequently stellated: *scapes* several from the same root, 1—1½ inch high, slender, simple, stellato-pubescent. *Pedicels* short, pubescent, or rarely glabrous. *Cal.* mostly downy. *Pouch* oval-oblong, pubescent or glabrous.

4. D. *incána* L. (*twisted-podded Whitlow-grass*); cauline leaves several lanceolate toothed hoary with starry pubescence, pouch oblong somewhat twisted. *E. Bot.* t. 388 (*from a cult. specimen*); *Ed. Cat.* p. 5.

Mountain rocks, in much less elevated situations, and far more frequent than the last; in Wales, the N. of England, and Scotland. *Fl.* June, July. ♂. — 4—6 inches to a foot or more high, sometimes throwing out lateral *branches*. Lower *leaves* frequently entire, upper ones deeply toothed, almost cut, acute. *Pouch* erect, glabrous in British specimens.

5. D. *murális* L. (*Speedwell-leaved Whitlow-grass*); stem branched, leaves ovate obtuse amplexicaul toothed, pouch patent glabrous. *E. Bot.* t. 912; *Ed. Cat.* p. 5.

Limestone mountainous countries, on rocks and walls. Craven, Yorkshire. Wardon hills, Bedfordshire. Emborough, Somersetshire. About Forfar, Edinb. and Chelsea, where it has probably escaped from gardens. Blarney Castle, Ireland. *Fl.* May. ☉. — Six inches to one foot high. *Leaves* scabrous. *Pouch* elliptical.

15. Camelína *Crantz.* Gold of Pleasure.

Pouch subovate, many-seeded; *valves* inflated. *Cotyledons* incumbent (o‖). *Filaments* simple. *Br.*—Named from χαμαι, *dwarf* or *humble*, and *Linum, flax.*

1. C.* *sativa* Crantz (*common Gold of Pleasure*); pouch obovate margined, stigma simple, leaves lanceolate sagittate. *Ed. Cat.* p. 3. Myagrum *L.* Alyssum, *E. Bot.* t. 1255.

Fields, occasionally among flax, with which it has been imported. *Fl.* June, July. ☉. — 2—3 feet high, panicled above. *Flowers* small, yellow. *Pouches* very large, on long stalks.

16. Kóniga *Adans., Br.* Koniga.

Pouch subovate; *valves* nearly plane; *cells* 1-seeded; *seed-stalks* with their base adnate to the dissepiment. *Seeds* (mostly) margined. *Cotyledons* accumbent (o=). *Cal.* patent. *Pet.* entire. *Hypogynous glands* 8! *Filaments* simple. — Name:

Konig of Adanson; *Koniga* of Mr. Brown, by whom it is intended "to commemorate the important services rendered to Botany by Mr. *König* of the British Museum."

1. K. * *marítima* Br. (*sea-side Koniga*). *Ed. Cat.* p. 7. Alyssum *Willd.*: *E. Bot.* t. 1729. A. halimifolium, *Bot. Mag.* A. minimum and Clypeola maritima *L.* Glyce maritima *Lindl.*

Cliffs by the sea, naturalized; near Aberdeen. Budleigh Salterton, Devon. Wall at Newlyn, Mount's Bay, Cornwall. *Fl.* Aug. Sept. ♃. — *Stem* somewhat woody at the base. *Leaves* linear-lanceolate, hoary with bipartite appressed hairs. *Flowers* white and fragrant, honey-scented. The plant is much cultivated.

(*Alyssum calycinum* Willd. is introduced into the *Ed. Cat. of Brit. Plants*, p. 1.

Unquestionably a recently-introduced plant, first found by the *Rev. A. Bloxam*, in a field near Charnwood forest, and since in several parts of England and Scotland. It does not seem to be permanently naturalized, and is surely better omitted.)

SILIQUOSÆ. *Fruit a long narrow pod.* (Gen. 17—30.)

17. Dentária *Linn.* Coral-root.

Pod narrow-lanceolate, tapering; the *valves* flat, generally separating elastically, nerveless. *Seed-stalks* broad. *Cotyledons* accumbent (o=). — Name: *dens*, a *tooth*, from the tooth-like scales of the root.

1. D. *bulbífera* L. (*bulbiferous Coral-root*); stem quite simple, lower leaves pinnated, upper ones simple with axillary bulbs. *E. Bot.* t. 309; *Ed. Cat.* p. 4. Cardamine *Br.*

Woods and shady places, rare. Sussex, Middlesex. Near Dupplin and banks of the Esk, below Dalkeith. *Fl.* April, May. ♃. — *Root* creeping, bearing thick, fleshy scales or tooth-like processes. *Stem* 1—1½ foot high. *Leaflets* lanceolate, as are the upper leaves themselves, serrated, somewhat fleshy, often having a small bulb in their axils. *Flowers* rather large, purple.

18. Cardamíne *Linn.* Bitter-cress.

Pod linear, the *valves* flat, generally separating elastically, nerveless. *Seed-stalks* slender. *Cotyledons* accumbent (o=). — Name: καρδια, the *heart*, and δαμαω, *to fortify*: from its supposed strengthening qualities.

1. C. *amára* L. (*large-flowered Bitter-cress*); leaves pinnated, radical leaflets roundish, cauline ones dentato-angulate, style oblique, stigma rather acute, stem rooting at the base. *E. Bot.* t. 1000; *Ed. Cat.* p. 3.

Wet meadows, near rivulets: not unfrequent. *Fl.* April, June. ♃. — One foot high. Well distinguished from the following by the broad angulato-dentate *leaflets* of its upper *leaves*, and the large white *flowers*, which have purple *anthers*.

2. C. *praténsis* L. (*common Bitter-cress*); leaves pinnate, radical leaflets roundish dentate, cauline ones lanceolate nearly entire, style straight, stigma capitate. *E. Bot.* t. 776; *Ed. Cat.* p. 3.

Moist meadows, abundant. *Fl.* May. ♃. — 1—2 feet high. *Flowers* large, blush-coloured: sometimes found double, in which state the leaflets are known to produce new plants, when they come in contact with the ground, while still attached to the parent plant.

3. C. *impátiens* L. (*narrow-leaved Bitter-cress*); leaves pinnate, leaflets lanceolate somewhat cut or entire, stipules ciliated, petals linear or none. *E. Bot.* t. 80; *Ed. Cat.* p. 3.

Moist rocks, rare; Derbyshire, Westmoreland and Cumberland. Near the falls of the Clyde and banks of the Doune. *Fl.* May, June. ☉. — 1—1½ foot high; well distinguished by the fringed *stipules* at the base of each *leaf*. *Flowers* minute, white.

4. C. *hirsúta* L. (*hairy Bitter-cress*); leaves all pinnated and without stipules, leaflets petiolate, radical ones roundish, stamens 4—6 equal in length to the petals, stigma nearly sessile. *E. Bot.* t. 492; *Ed. Cat.* p. 3. C. flexuosa *With.* C. sylvatica *Link*; *Leight. Shropsh. Fl.* p. 316. C. parviflora *L.*

Moist shady places, abundant. *Fl.* March—June. ☉. — Varying much in size and luxuriance, according to soil and situation; from 4 inches to 1 foot and more in height, as in *C. sylvatica* of authors. *Leaflets* more or less angled or toothed, upper ones ovate or even linear; hairy or glabrous. *Flowers* small, white.

5. C. * *bellidifólia* L. (*Daisy-leaved Bitter-cress*); leaves simple ovate entire upon rather long footstalks. *E. Bot.* t. 2355; *Ed. Cat.* p. 3.

Scotland (*Mr. Milne* in *With.*). County of Clare? — Not a native. *Fl.* Aug. ♃. — 1—3 inches high. *Flowers* white.

19. Árabis *Linn.* Rock-cress.

Pod linear, crowned with the nearly sessile *stigma; valves* veiny or nerved. *Seeds* in one row. *Cotyledons* accumbent (o=). *Cal.* erect. *Br.* — So named, because originally an *Arabian* genus.

1. A. *stricta* Huds. (*Bristol Rock-cress*); leaves toothed obtuse hispid, radical leaves somewhat lyrate, stems hairy, petals and pods erect. *E. Bot.* t. 614; *Ed. Cat.* p. 1.

Rare; St. Vincent's rocks, near Bristol; among limestone. *Fl.* March. ♃. — Habit of *Sisymbrium Thalianum*, but perennial: *root-leaves* strongly ciliated, with frequently forked or trifid setæ, and rather hispid than hairy; *flowers* twice the size; *stem-leaves* few, small.

2. A. *petræa* DC. (*alpine Rock-cress*); radical leaves lyrato-pinnatifid stalked, cauline ones undivided sessile, pods spreading twice as long as the pedicels. *Ed. Cat.* p. 1. A. hispida *L.* Cardamine petræa *Huds.* C. hastulata, *E. Bot.* t. 409.

Alpine rocks in North Wales. Frequent on the high mountains of the west and north of Scotland; on the Cairngorum range. Hebrides; especially Skye. Ross-shire and Sutherland: *Prof. Graham.* *Fl.* June, July. ♃. — 3—6 inches high, slender, glabrous or more or less hairy. *Flowers* moderately large, with a purplish tinge.

3. A. *ciliáta* Br. (*fringed Rock-cress*); leaves somewhat toothed oval glabrous ciliated, radical ones nearly sessile obtuse, those of the simple stem semiamplexicaul. *Ed. Cat.* p. 1. Turritis alpina *L.*: *E. Bot.* t. 1746.

By the sea-side at Rinville, Cunnamara, Ireland. Rocks near Loch Lea in Glen Esk, Scotland, *Fl.* July. ♂. — 4—6 inches high. *Root-leaves* several, oval, or obovato-oblong, obtuse; *cauline* ones small. *Pods* nearly erect.

4. A. *hirsúta* Br. (*hairy Rock-cress*); leaves all hispid dentate, cauline ones semiamplexicaul, pods straight. *Ed. Cat.* p. 1. Turritis hirsuta *L.*: *E. Bot.* t. 587.

Walls, rocks, and banks: frequent in many parts of England and Scotland. *Fl.* June. ♂. — One foot or more high, erect, stiff. *Stem* rough with spreading hairs, bearing many *leaves*. *Flowers* small, white. *Pods* numerous, erect.

5. * A. *Turríta* L. (*Tower Wall-cress*); leaves amplexicaul, pods recurved flat and linear with the margins incrassated, bracteas foliaceous. *E. Bot.* t. 178; *Ed. Cat.* p. 1.

Walls of Trinity and St. John's Colleges, Cambridge; and Magdalen College, Oxford. Cleish Castle, Kinross. *Fl.* May. ♂.

20. Turrítis *Linn.* Tower-Mustard.

Pod elongated, 2-edged; *valves* nerved or keeled. *Seeds* in a double row. *Cotyledons* accumbent (o=). *Br.* — Named from *turris*, a *tower*; the leaves becoming gradually smaller upwards, so that the plant assumes a pyramidal form.

1. T. *glábra* L. (*long-podded Tower-Mustard*); radical leaves toothed hairy, cauline ones amplexicaul entire glabrous. *E. Bot.* t. 777; *Ed. Cat.* p. 14.

Banks and road-sides in many parts of England, but not general; apparently most frequent in Norfolk and Suffolk. Bowling Bay, Scotland. *Fl.* May, June. ☉. — 1—2 feet high. *Leaves* oblongo-lanceolate, glaucous; *radical* ones toothed or sinuated at the base; *cauline* ones sagittate. *Flowers* yellowish-white. *Pods* long, erect. Whole plant very erect and straight.

21. Barbaréa *Br.* Winter-cress.

Pod 4-angled and somewhat 2-edged. *Cotyledons* accumbent (o=). *Seeds* in a single row. *Calyx* erect. *Glands* between the shorter *filaments*. *Br.* — Name: this plant was formerly dedicated to *St. Barbara*.

1. B. *vulgáris* Br. (*bitter Winter-cress, yellow Rocket*); lower leaves lyrate, the terminal lobe rounded, the superior ones

obovate toothed often pinnatifid at the base, pods linear tereti-4-angled acuminate. *Ed. Cat.* p. 2. Erysimum Barbarea *L.*: *E. Bot.* t. 443.

Pastures and hedges, frequent. *Fl.* May—Aug. ♃. — 1—2 feet high, stout, furrowed, branched, glabrous. *Flowers* yellow. The *Rev. C. Smith* finds by Loch Awe, a *var.* with all the *leaves* lyrato-pinnatifid.

2. B.* *précox* Br. (*early Winter-cress*); lower leaves lyrate, upper ones pinnatifid, segments linear-oblong entire, pods linear obtuse compressed. *Ed. Cat.* p. 2. Erysimum præcox *E. Bot.* t. 1129.

Waste places in Devonshire and elsewhere. *Fl.* April—Oct. ♂. — 1—2 feet high; slenderer than the last in every part. *Flowers* smaller; *pods* longer.

22. NASTÚRTIUM *Br.* Cress.

Pod nearly cylindrical (sometimes short); *valves* concave, neither nerved nor keeled. *Cotyledons* accumbent (o=). *Cal.* patent. *Br.* — Named from *Nasus tortus*, a *convulsed nose*, an effect supposed to be produced by the acrid and pungent quality of this plant.

1. N. *officinále* Br. (*Water-cress*); leaves pinnate, leaflets ovate subcordate sinuato-dentate. *Ed. Cat.* p. 9. Sisymbrium Nasturtium *L.*: *E. Bot.* t. 855.

Brooks and rivulets, frequent. *Fl.* July. ♃. — A well known aquatic plant and an excellent and wholesome salad. *Lower leaves* large; of 5—7 distant *leaflets*, the terminal one the largest and roundest; *cauline leaflets* subovate, all rather succulent, glabrous, more or less waved or toothed. *Flowers* white. *Pods* about an inch long, patent.

2. N. *sylvéstre* Br. (*creeping Nasturtium*); leaves pinnate, leaflets lanceolate cut, those of the uppermost leaves entire, petals much longer than the calyx. *Ed. Cat.* p. 9. Sisymbrium sylvestre *L.*: *E. Bot.* t. 2324.

Water-sides and waste places, but not common. *Fl.* July, Aug. ♃. — *Roots* much creeping. *Stem* 1 foot high, angular, branched. *Flowers* yellow. *Pods* short, patent or curved a little upwards. Some difficulty, it must be confessed, attends the distinguishing the several *vars.* of this and the following species. An intermediate one, as it were, *N. anceps*, is described by Reichenbach (*Crucif. Germ.* t. 54), which Mr. Babington, at the British Association, in 1839, reported to be "common" in England. It is also taken up in the *Ed. Cat.* p. 9. I have seen no British authentic specimens. *Koch* says of *N. anceps* that it is very like *N. sylvestre*, but differs in its stouter habit, in the lower *leaves* being lyrate, and the *pods* shorter in proportion to the *pedicel*. *Wahlenberg* quotes under it *Sisymbrium amphibium* γ. *terrestre* L.; but that plant is not the same as the *terrestre* of *Smith*.

3. N. *terréstre* Br. (*Marsh Nasturtium*); leaves lyrato-pinnatifid unequally toothed glabrous, root simply fibrous, petals not longer than the calyx. *Ed. Cat.* p. 9. N. palustre *DC.*

Sisymbrium *Willd.* S. amphibium var. *L.* S. terrestre, *E. Bot.* t. 1747.

Watery places, in many parts of England and Scotland. *Fl.* June—Sept. ⊙. — 1 foot high, branched. Distinguished from the last by its pinnatifid not pinnated *leaves*, its minute (yellow) *petals* and more turgid *pods*.

4. N. *amphíbium* Br. (*amphibious Nasturtium*); leaves oblong pinnatifid or serrated, root simply fibrous, petals longer than the calyx. *Ed. Cat.* p. 9. Sisymbrium amphib. *L.: E. Bot.* t. 1840.

Watery places, frequent. *Fl.* June—Aug. ♃. — 2—3 feet high. If any *leaves* grow under water, they are deeply pinnatifid, otherwise only deeply serrated. *Pods* short, small, but turgid, erecto-patent.

23. Sisýmbrium *Linn.* Hedge-Mustard.

Pod rounded or angular. *Cotyledons* incumbent (o ‖) (sometimes oblique), plane. *Calyx* patent, sometimes erect. *Br.*— Name: σισυμβριον; given by the ancients to some plant, perhaps allied to this.

1. S. *officinále* L. (*common Hedge-Mustard*); pods subulate pubescent close-pressed to the main-stalk, leaves runcinate hairy, stem hispid. *Ed. Cat.* p. 13. Erysimum officinale *L.: E. Bot.* t. 735.

Waste places and by way-sides, plentiful. *Fl.* June, July. ⊙. — One to two feet high, branched. The deep and cut serrated lobes are not always sufficiently decurved to constitute a *runcinate leaf;* the terminal lobe is very large, roundish in the lower *leaves*, and oblong in the upper ones. *Flowers* very small, pale yellow.

2. S. *Írio* L. (*broad Hedge-Mustard, London Rocket*); leaves runcinate toothed and as well as the stem glabrous, pods nearly erect. *E. Bot.* t. 1631; *Ed. Cat.* p. 13.

Waste places, chiefly about London; in which city it covered the ground immediately after the great fire. Faulkbourn, Essex, and Berwick upon Tweed. Dublin. *Fl.* July, August. ⊙. — *Flowers* yellow. *Pods* 2 inches long, erect.

3. S. *Sophía* L. (*fine-leaved Hedge-Mustard*, or *Flaxweed*); leaves doubly pinnatifid slightly hairy, lobes linear or oval, petals shorter than the calyx. *E. Bot.* t. 963; *Ed. Cat.* p. 13.

Waste places, among rubbish; frequent. *Fl.* Aug. ⊙. — Two feet high, branched. *Flowers* small, yellow. *Pods* linear, slender, erect, but not appressed, the footstalk being a little patent.

4. S. *thaliánum* (*common Thale-cress*): leaves somewhat toothed hairy, radical ones oblong subpetiolate, stem branched, pods ascending. *Ed. Cat.* p. 13. Arabis *L.: E. Bot.* t. 901.

Walls, dry banks and gravelly soils, common. *Fl.* April, May. ⊙.— Six to ten inches high, slender, with few *leaves*, and those mostly radical. *Flowers* small, white. The *cotyledons* are *incumbent* here, not *accumbent* as in the true *Arabis*, with which, however, it agrees better in habit.

24. Erýsimum *Linn.* Treacle-Mustard.

Pod 4-sided. *Seeds* not margined. *Cotyledons* incumbent (o ‖). *Stigma* capitate, sometimes emarginate, with the lobes patent. *Cal.* erect. *Br.* — Named from ερυω, to *cure*, on account of the supposed virtues of the plant.

1. E. *cheiranthoídes* L. (*Worm-seed Treacle-Mustard*); leaves lanceolate entire or slightly toothed with stellato-tripartite hairs, pods nearly erect their pedicels spreading, stigma undivided nearly sessile. *E. Bot.* t. 942; *Ed. Cat.* p. 5.

Fields, gardens, and waste places. *Fl.* July, August. ⊙. — 1—2 feet high, branched. *Flowers* small, yellow.

2. E. *Alliária* L. (*Garlic Treacle-Mustard, Jack-by-the-Hedge or Sauce-alone*); leaves heart-shaped stalked sinuato-dentate. *E. Bot.* t. 796; *Ed. Cat.* p. 5. Alliaria officinalis *DC.*

Hedge-banks and waste places. *Fl.* May, June. ♂. — 2—3 feet high, branched. *Leaves* large, veined, well known by their garlic-like smell. *Flowers* white. *Pods* between erect and patent.

3. E. *orientále* Br. (*Hare's-ear Treacle-Mustard*); leaves cordato-amplexicaul, radical ones obovate, all glabrous glaucous and entire. *Ed. Cat.* p. 5. Brassica orientalis *L.: E. Bot.* t. 1804.

Fields and cliffs near the sea; Essex, Suffolk, Sussex. *Fl.* June. ⊙.

(*Erýsimum virgátum* Roth is given in *Ed. Cat.* as a native of great Britain, but I know not on what authority.)

25. Cheiránthus *Linn.* Wall-flower.

Pod compressed or 2-edged. *Cotyledons* accumbent (o=). *Cal.* erect, opposite sepals saccate at the base. *Stigma* placed on a *style*, 2-lobed, the lobes patent or capitate. *Br.* — Named from the Arabic *Kheyry*, not however originally applied to this genus.

1. C. *Cheíri* L. (*common Wall-flower*); leaves lanceolate acute entire with bipartite appressed hairs, pods linear, lobes of the stigma patent, stem shrubby. *Ed. Cat.* p. 4. C. fruticulosus *L.: E. Bot.* t. 1934.

Old walls. *Fl.* April, May. ♄. — A *variety*, with larger, more highly coloured and more flaccid *petals*, is commonly cultivated in gardens.

26. Matthíola *Br.* Stock.

Pod (rounded or compressed) crowned with the connivent 2-lobed *stigma*, the lobes either thickened at the back, when the *cotyledons* are incumbent (o ‖), or with a point at the base. *Cal.* erect. Longer *filaments* dilated. *Br.* — Named in honour of an Italian physician, *P. A. Matthiolus.*

1. M. *incána* Br. (*hoary shrubby Stock*); stem shrubby upright branched, leaves lanceolate entire, pods cylindrical with-

out glands. *Ed. Cat.* p. 8. Cheiranthus incanus *L.*: *E. Bot.* t. 1935.

Cliffs to the eastward of Hastings; but not wild. Ventnor, Isle of Wight: *Mr. Winterbottom. Fl.* May, June. ♄. — The origin of the Stock Gilly-flower of our gardens; where it is generally treated as an annual or biennial.

2. M. *sinuáta* Br. (*great Sea Stock*); stem herbaceous, spreading, leaves downy, lower ones sinuated, pods compressed muricated. *Ed. Cat.* p. 8. Cheiranthus *L.* *E. Bot.* t. 462.

Sandy shores of Wales and Cornwall. Jersey and Guernsey. *Fl.* May—Aug. ♂. — *Flowers* purple, large, fragrant at night.

27. Hésperis *Linn.* Dame's Violet.

Pod 4-sided or 2-edged. *Stigma* nearly sessile, the lobes connivent. *Cotyledons* incumbent (o ‖), plane. *Cal.* erect. *Br.* — Named from ἑσπερος, the *evening;* at which time the flowers yield a powerful fragrance.

1. H. **matronális* L. (*common Dame's Violet*); stem erect, leaves ovato-lanceolate toothed, limb of the petals obovate, pods erect torulose their margins not thickened. *Ed. Cat.* p. 6. H. inodora *L.*: *E. Bot.* t. 731.

Hilly pastures, in several parts of Great Britain. *Fl.* May, June. ♃.

28. Brássica *Linn.* Cabbage, Turnep.

Pod 2-valved (with a sterile, one- or many-seeded beak). *Cotyledons* conduplicate (o> >). *Calyx* erect. *Br.* — Name derived from the Celtic *Bresic*, a *Cabbage.*

1. B. **Nápus* L. (*wild Navew, Rape, or Cole-seed*); root caulescent fusiform, leaves smooth, upper ones cordato-lanceolate amplexicaul, lower ones lyrate toothed. *E. Bot.* t. 2146; *Ed. Cat.* p. 2.

Corn-fields and waste ground, frequent. *Fl.* May, June. ♂. — 1—2 feet high. *Lobes* of the lower *leaves* crenate; upper *leaves* entire, somewhat glaucous. *Petals* yellow, rather small. *Pods* torulose. — Cultivated for the oil produced by its seeds, which after pressure are formed into cakes, and used as manure and for feeding cattle.

2. B. **Rápa* L. (*common Turnep*); root caulescent orbicular depressed fleshy, radical leaves lyrate scabrous, those of the stem nearly entire smooth. *E. Bot.* t. 2176; *Ed. Cat.* p. 2.

Borders of fields and waste places. *Fl.* April, May. ♂. — Varying exceedingly in height, according to soil. Upper *leaves* amplexicaul, ovato-acuminate, subglaucous; all more or less toothed.

3. B. *olerácea* L. (*Sea Cabbage*); root caulescent cylindrical fleshy, all the leaves glabrous glaucous waved and lobed. *E. Bot.* t. 637; *Ed. Cat.* p. 2.

Cliffs by the sea: Devonshire, Dover, Wales, Cornwall, Yorkshire, and in the Firth of Forth. *Fl.* May, June. ♂. — Varying in height,

1—2 feet. *Leaves* thick, subcarnose, the uppermost undivided, but toothed. *Flowers* large, yellow. — The origin of our garden *Cabbage*.

4. B. *Monénsis* Br. (*Isle-of-Man Cabbage*); leaves pinnatifid, stem nearly leafless glabrous, pods smooth, beak 1(—3)-seeded. Sisymbrium *L.: E. Bot.* t. 962. Sinapis *Bab.: Ed. Cat.* p. 13.

On the isles and shores of the Clyde, and on both sides of the Irish Channel. In Lorn, Scotland. *Fl.* June, July. ♃. — *Stems* prostrate, slightly hispid, greedily eaten by cattle and sheep, and probably deserving of being cultivated as fodder.

5. B. *Cheíranthus* Vill. (*Wall-flower Cabbage*); leaves stalked hispid all deeply pinnatifid, lobes oval-oblong unequally toothed in the upper one linear, base of the stem hispid, pods cylindrical, the valves 3-nerved, the beak 1—2-seeded. *DC.: Bot. Gall.* i. 51. Sinapis, *Bab. Prim. Fl. Sarn.* p. 9; *E. Bot. Suppl.* t. 2821; *Ed. Cat.* p. 13.

Sands of St. Aubin's bay, Jersey: *Babington and Christy. Fl.* July, Aug. ♂? — The seeds in the beak distinguish this plant from all the British species, except *B. Monensis;* but that has nearly a leafless glabrous and usually prostrate stem. In this plant the stems are upright. *Babington.*

6. B. *campéstris* L. (*common wild Navew*); root and stem slender, leaves cordate acuminate amplexicaul, lower ones lyrate dentate subhispid. *E. Bot.* t. 2234; *Ed. Cat.* p. 2.

Corn-fields, and sides of rivers and ditches, in many places. *Fl.* June, July. ☉. — *Root* fusiform, but slender. *Stem* hispid below. *Flowers* yellow. *Pod* upright, cylindrical or obscurely 4-angular, veiny: *seeds* forming slight prominences; *beak* awl-shaped, striated.

29. Sinápis *Linn.* Mustard.

Pod 2-valved (sometimes of 2 joints, of which the upper one is without valves). *Cotyledons* conduplicate (o>>). *Cal.* patent. *Br.* (*Sinapis* and *Diplotaxis* DC.) — Named from the Greek σιναπι, which again *Théis* derives from the Celtic *Nap*, a *Turnep* or *Cabbage*.

1. S. *arvénsis* L. (*wild Mustard, Charlock*); pods with many angles turgid and knotty longer than the two-edged beak. *E. Bot.* t. 1748; *Ed. Cat.* p. 13.

Corn-fields, too frequent. —

> " O'er the young corn the *Charlock* throws a shade,
> And clasping Tares cling round the sickly blade."

Fl. May, June. ☉. — 1—2 ft. high, rough. *Flowers* rather large, yellow.

2. S. *álba* L. (*white Mustard*); pods hispid turgid shorter than the ensiform beak, leaves pinnatifid. *E. Bot.* t. 1677; *Ed. Cat.* p. 13.

Waste places, frequent. *Fl.* July. ⊙. — *Stem* 1—1½ foot high, hairy. Lobes of the *leaves* variously cut and toothed, or erose. *Flowers* large, yellow. Well distinguished by its long *beak*. — This plant, while in a young state, is eaten under the name of *Mustard*, with *Cresses* (*Lepidium sativum*).

3. S. *nígra* L. (*common Mustard*); pods appressed glabrous tetragonous, style short subulate, upper leaves linear-lanceolate entire glabrous. *E. Bot.* t. 969. Brassica *Koch: Ed. Cat.* p. 2.

Under hedges and in waste places. *Fl.* June. ⊙. — 3—4 ft. high. Lower *leaves* large, lyrate, rough. *Flowers* yellow. *Pod* with a very short *beak*, or rather only the persistent *style* and *stigma* at its summit, quadrangular, its surface scarcely rugged. — The *seeds* yield the *mustard* of our tables.

4. S. *incána* L. (*hoary Mustard*); pods appressed turgid with a short 1-seeded beak, leaves lyrate hispid, cauline ones linear-lanceolate, stem much branched. *DC.: Bot. Gall.* i. 52. Erucastrum incanum *Koch: E. Bot. Suppl.* t. 2843; *Bab. Prim. Fl. Sarn.* p. 9; *Ed. Cat.* p. 5.

On the Quenvais, Jersey, but rare. *Fl.* July, Aug. ♂. — "*Pod* glabrous or hairy, with a glabrous beak; each of its valves with 1 nerve. *Seed* ovate, compressed." *Babington.*

5. S. *tenuifólia* Br. (*fine-leaved Mustard*); pods linear glabrous shortly beaked erect, peduncles spreading, leaves lanceolate very acute pinnatifid or bipinnatifid, stem glabrous. Sisymbrium *L.: E. Bot.* t. 525. Diplotaxis *DC.: Ed. Cat.* p. 5.

Old walls about great towns, in the south, south-west, and east of England; as London, Bristol, Yarmouth, Chester, coast of Fife. *Fl.* July, Aug. ♃. — *Root* thick, woody. *Stem* 1—1½ ft. high. *Flowers* large, yellow. This plant smells very disagreeably.

6. S. *murális* Br. (*sand Mustard*); pods linear glabrous shortly beaked erect, peduncles spreading, leaves sinuate glabrous, stem spreading hairy. Sisymbrium murale *L.: E. Bot.* t. 1090. Diplotaxis *DC.: Ed. Cat.* p. 5.

Sandy barren fields near the sea, in the south and south-west of England. Isle of Thanet, and below Bristol. Dunfermline. *Fl.* Aug. Sept. ⊙. — Very like the preceding, but annual.

30. Ráphanus *Linn.* Radish.

Pod without *valves*. *Cotyledons* conduplicate (o>>). *Cal.* erect. *Br.* — Name: ρα, *quickly*, and φαίνομαι, to *appear*; from its rapid vegetation.

1. R. *Raphanístrum* L. (*wild Radish* or *jointed Charlock*); leaves simply lyrate, pods of one cell jointed striated. *E. Bot.* t. 856; *Ed. Cat.* p. 11.

Corn-fields, frequent. *Fl.* June, July. ⊙. — 1—1½ ft. high. *Leaves* stalked, rough. *Flowers* yellow, veined.

2. R. *marítimus* Sm. (*Sea Radish*); leaves interruptedly lyrate, pods of one cell jointed striated. *E. Bot.* t. 1643; *Ed. Cat.* p. 11.

Beachy-head, Sussex. Jersey and Guernsey. Sea-shore in Bute and Galloway, Scotland. *Fl.* June ♂. — 3—4 feet high. All the *leaves* rough and the lobes toothed. *Flowers* rather large, yellow. — "*Pods* larger than in the preceding, and (especially when dry) channelled with fewer, broader, and deeper furrows, and sharp intermediate prominences: the beak also is smoother, as is the upper portion of the plant generally." *J. E. Bowman.* — Is it really a distinct species?

Ord. VII. RESEDACEÆ *DeCand.*

Calyx of several narrow sepals. *Petals* unequal, mostly laciniated. *Stamens* 10—24, inserted upon a glandular irregular disk. *Ovary* sessile, 3-lobed, 1-celled, with 3 parietal receptacles bearing many *seeds*. *Stigmas* 3, sessile. *Fruit* opening in an early stage at the extremity. — *Reseda odorata*, so abundant in our gardens, is the sweet Mignonnette. *Reseda lutea* yields a yellow dye.

1. Reséda *Linn.* Rocket.

Cal. of 1 piece, many-parted. *Petals* more or less divided and unequal. *Caps.* of 1 cell, opening at the top. — Name from *resedo*, to *calm*; from its supposed sedative qualities.

1. R. *Lutéola* L. (*Dyer's Rocket, Yellow-weed* or *Weld*); leaves lanceolate undivided, calyx 4-partite. *E. Bot.* t. 320; *Ed. Cat.* p. 11.

Waste places; frequent on a chalky soil. *Fl.* July. ☉. — 2—3 ft. high, branched. *Racemes* long, of numerous yellowish *flowers*, with prominent *stamens*. *Nectary* large, green, crenate, on the upper side of the *flower*; 3 of the *petals* 3-cleft, segments linear; two lower petals entire. *Capsules* broad, depressed. — Used in dyeing woollen stuffs yellow.

2. R. *lútea* L. (*base Rocket, wild Mignonnette*); leaves 3-cleft or pinnatifid, lower ones pinnated, calyx 6-partite, petals 6 very unequal. *E. Bot.* t. 321; *Ed. Cat.* p. 11.

Waste places and chalky hills. *Fl.* July, August. ☉ or ♃. — *Leaves* very variable, some bipinnatifid. *Flowers* deeper yellow than in the last. Two upper *petals* with 2 wing-like lobes, lateral ones unequally bifid; lower ones entire. *Capsule* oblong, wrinkled.

3. R. * *fruticulósa* L. (*shrubby base Rocket*); leaves all pinnated waved glaucous, calyx 5-partite, petals 5 nearly equal trifid. *Jacq. Ic. Rar.* t. 474; *Hook. in E. Bot. Suppl.* t. 2628; *Ed. Cat.* p. 11.

Weston super-mare, Somersetshire. Unenclosed sand-hills, Bootle, 4—5 miles from Liverpool. The following stations, either for this or *R. alba*, have also been communicated to me; — about Dublin; between Cork and Glanmire; and near Gosport. *Fl.* June ♂ or ♃. — *Mr. Borrer* informs me that there are specimens of this and its near ally

R. alba in the Linnæan Herbarium, and the difference between them appears very slight. *R. alba* has shorter flower-stalks and thence more cylindrical *racemes*, and the terminal lobe of its *leaves* is more similar to the rest (less dilated than that of *R. fruticulosa*).

Ord. VIII. CISTINEÆ *Juss.*

Sepals 5, unequal, the 3 inner larger and with a twisted æstivation. *Petals* 5, deciduous, with a twisted æstivation. *Stamens* numerous. *Ovary* 1, 1- or many-celled. *Style* filiform. *Stigma* simple. *Capsule* of 3—5, rarely 10 valves. *Seeds* numerous. *Embryo* spiral or curved, in a mealy *albumen*. — Shrubs *or* herbaceous *plants, abounding in southern Europe and northern Africa, with handsome, generally fugacious flowers.* — *Cistus Creticus* affords the balsam called *Gum Labdanum*. The stamens of *Helianthemum* expand after being suddenly compressed between the finger and thumb.

1. Heliánthemum [1] *Tourn.* Rock-rose.

Sepals 3, equal; or 5, of which 2 outer ones are smaller. *Pet.* 5. *Stigma* capitate. *Caps.* 3-valved. — Named from ἥλιος, the *sun*, and ανθος, a *flower*: the same as *Helianthus*.

1. H. *cánum* Dun. (*hoary dwarf Rock-rose*); shrubby without stipules, leaves opposite ovate or oblong petiolate flat hoary beneath, racemes terminal bracteated, sepals 5, the inner with 4 ribs, style twisted at the base reflexed, at the apex inflexed, seeds blackish. *Benth.: Lindl. Syn.* p. 36; *Ed. Cat.* p. 6. Cistus canus *Jacq.* C. Anglicus *L.* C. marifolius, *E. Bot.* t. 396 (not *L.*?) *Hook. in Fl. Lond. N. S.* t. 171.

Rare; alpine rocks in the north of England, Lancashire, Westmoreland; on Cronkley Fell, Yorkshire; and in Wales. *Fl.* May, June. ♃. — A low shrubby plant, with hoary *leaves*, and rather small yellow *flowers*.

2. H. *guttátum* Miller (*spotted annual Rock-rose*); annual erect without stipules, leaves oblongo-lanceolate or linear, the lower opposite, the upper alternate, racemes without bracteas, sepals 5, style straight very short, stigma capitate. *Benth.: Lindl. Syn.* p. 37; *Ed. Cat.* p. 6. Cistus guttatus *L.: E. Bot.* t. 544.

Very rare. Jersey. Holyhead mountain. *Fl.* June, July. ☉.

3. H. * *ledifólium* Willd. (*Ledum-leaved Rock-rose*); herbaceous slightly downy with stipules, leaves lanceolate, flower-stalks solitary erect opposite to the leaves shorter than the calyx, styles straight, capsule polished. *Lindl. Syn.* p. 37; *Ed. Cat.* p. 6. Cistus ledifolius (and Niloticus) *L.: E. Bot.* t. 2414.

[1] I am very happy to be able to avail myself of the specific characters of most of the British species of this difficult genus, given by Mr. Bentham in Lindley's Synopsis.

Very rare. On Brean downs, Somersetshire: *Huds. Fl.* June, July. ♃. — I have never seen British specimens of this plant. It is certainly the *Cistus Niloticus* of Linnæus; his *C. ledifolius* being glabrous, and probably the cultivated state of the plant.

4. H. *vulgáre* Gært. (*common Rock-rose*); shrubby procumbent stipuled, leaves opposite ovate or oblong nearly flat green above, racemes terminal bracteated, sepals 5, the inner furrowed and scariose at the edge, style bent at the base, somewhat clavate at the apex, seeds black. *Benth.: Lindl. Syn.* t. 37; *Ed. Cat.* p. 6. Cistus Helianthemum *L.: E. Bot.* t. 1321. C. tomentosus, *E. Bot.* t. 2208. — β. petals lanceolate, often cut. Cistus Surrejanus *L.?: E. Bot.* t. 2207?.

Frequent in dry pastures, especially in a gravelly or chalky soil. — β. Croydon, Surrey. *Fl.* July, Aug. ♃. — I am indebted for specimens of the Croydon plant to my late friend, *Mr. Christy*, who proved it by culture to be a *var.* or rather a monstrosity of *H. vulgare*, with imperfect *petals*. Mr. Borrer observes that the garden plant of *E. Bot.* is different; but he knows not to which it should be referred.

5. H. *polifólium* (*white Mountain Rock-rose*); shrubby procumbent stipuled hoary, leaves opposite ovato-oblong or oblongo-linear more or less revolute at the edge, racemes terminal bracteated, sepals 5, the inner furrowed and scariose at the edge, style bent at the base, somewhat clavate at the apex, seeds black. *Benth.: Ed. Cat.* p. 6. H. Apenninum *DC.: Lindl. Syn.* p. 37. Cistus polifolius *L.: E. Bot.* t. 1322.

Rare; in the south of England. Brean downs, Somersetshire; Torquay and Babbicombe rocks. *Fl.* July, Aug. ♃. — *Flowers* white. The *H. polifolium* of DC. is not the plant of Linn., but the *splendens* of Lamarck.

Ord. IX. VIOLARIEÆ *DC.*

Sepals 5, persistent, frequently extended at the base. *Petals* 5, equal; or (in *Viola*, &c.) unequal and the lower one spurred at the base. *Stamens* 5: *Anthers* generally with a dilated appendage at their extremity; 2 of them (in the genera with irregular flowers) usually appendiculated at the base. *Ovary* 1-celled, with 3 parietal receptacles, bearing several *seeds*. — Herbs *or* shrubs, *with stipuled leaves, and powerfully emetic and purgative roots;* as *Viola Ipecacuanha, Ionidium parviflorum* (which I have satisfactorily ascertained to be the famous "Cuychunchulle," *Ionidium Marcucii*, of Dr. Bancroft, &c.).

1. Víola *Linn.* Violet.

Cal. of 5 sepals extended at the base. *Pet.* 5, unequal, the under one spurred at the base. *Anthers* connate, 2 of them spurred behind. *Capsule* of 1 cell, and 3 valves. — Name of doubtful origin.

* *Stemless, or nearly so.*

1. V. *hírta* L. (*hairy Violet*); leaves cordate rough as well as the petioles and capsules with hairs, calyx-sepals obtuse, lateral petals with a hairy central line, creeping scions none. *E. Bot.* t. 894; *Ed. Cat.* p. 15.

Woods and pastures in England, principally in a chalky or limestone soil. Rare in Scotland, and, I believe, found only in the neighbourhood of Edinburgh. *Fl.* April, May. ♃. — *Stigma* an oblique point, in this and the 4 following species. *Flowers* pale, rather dingy blue, scentless. Nearly allied to *V. odorata;* distinguished, as Mr. Curtis well observed, by the short not creeping *scions*, by the greater hairiness of the plant, and by the situation of the little *bracteas* of the scape; here below, in *V. odorata*, above the middle. "Leaves crenate, rough *underneath*, and narrower than in *V. odorata*. I find a monstrosity near Gresford, *each* petal having a spur, and *each* anther having a process which enters into the spur; the limb also with many dark purple streaks, and the lateral petals without the usual hairy tuft:" *Mr. Bowman*. The flowers of this and the following species are often destitute of petals, and yet bear fruit.

2. V. *odoráta* L. (*sweet Violet*); leaves cordate and as well as the petioles nearly glabrous, calyx-sepals obtuse, lateral petals with a hairy line, scions creeping. *E. Bot.* t. 619; *Ed. Cat.* p. 15. — β. *Fl.* white, lateral petals without the hairy line. V. suavis *Bieb.*

Woods, banks, and pastures; frequent in England, very rare in Scotland. Near Slateford and Collinton woods, Edinburgh. Wood near the Castle Rock, Stirling. Hedges between Killiney hill and Bray, Ireland. — β. Shropshire: *Mr. Leighton. Fl.* March, April. ♃. — *Flowers* deep purple, fragrant, often white; in many parts of Devonshire, in the stiff red soil about Torquay especially, I have seen them very commonly of a lilac colour. *Bracteas* inserted above the middle of the *scape*. Mr. W. Wilson observes that the hairs of the scapes and leaf-stalks are deflexed, which is not the case with *V. hirta*.

3. V. *palústris* L. (*Marsh Violet*); leaves cordate or kidney-shaped quite glabrous veiny beneath, spur very short, lateral petals scarcely hairy, scions none. *E. Bot.* t. 444; *Ed. Cat.* p. 15.

Bogs and marshy grounds, less frequent in the south; abundant on the mountains of Scotland, and at a very considerable elevation. *Fl.* April—June, and even in July in the colder regions. ♃. — *Flowers* very pale blue, with purple streaks. The *petals* are slightly hairy on one side at the base, as Mr. W. Wilson well observes; the lateral ones have not a distinct line of hairs.

** *Furnished with an evident stem.*

4. V. *canína* L. (*Dog Violet*); stem at length ascending channelled, leaves cordate acute, sepals acuminate, stipules long ciliato-dentate, bracteas subulate entire. *E. Bot.* t. 620; *Ed. Cat.* p. 16. — β. *mínor*. V. flavicornis *Sm.: E. Fl.* vol. i. p. 304: *Forst. in E. Bot. Suppl.* t. 2736.

Woods, banks, and dry pastures, frequent; and in clefts of rocks upon the mountains at a considerable elevation. *Fl.* April—August. ♃. — Variable in regard to size; but, as it appears to me, very constant to the above characters. In mountainous situations, the blossoms are often numerous, and large in proportion to the size of the plant. *Flowers* scentless, blue, purple, or sometimes almost white. On the sandy Denes at Yarmouth, and other dry and barren places, this plant is very small in all its parts, and becomes the *V. flavicornis*.

5. V. *láctea* Sm. (*Cream-coloured Violet*); stem ascending, leaves ovato-lanceolate glabrous, stipules dentate, calyx-sepals acuminate. *E. Bot.* t. 445; *Ed. Cat.* p. 15.

On mountains and boggy heaths. Near Tunbridge Wells, and in Cornwall. Near Peebles. Brandon Mountain, Ireland. *Fl.* May. ♃. — A small plant, with its *leaves* almost lanceolate, and narrower than in the last species, and with pale blue or almost white *flowers*. But it appears very doubtful if it be really distinct. DeCandolle makes it a var. of *V. montana* of Linn.; and it seems to agree also with *V. lancifolia* of Thore, which again DeCandolle considers to belong to *V. pumila* of Villars; to which indeed Mr. Borrer would refer this and our var. *minor* of *V. canina*. — *Capsule* scarcely longer than the *cal.*, and turbinate or flattened at top: *Miss Warren*.

6. V. *trícolor* L. (*Pansy Violet* or *Heart's Ease*); mostly annual, stem angled branched, leaves oblong deeply crenate, stipules lyrate pinnatifid. — *α*. petals longer than the calyx. V. tricolor *L.*: *E. Bot.* t. 1287; *Ed. Cat.* p. 15. V. Curtisii *Forst. in E. Bot. Suppl.* t. 2693. — *β*. petals shorter than the calyx. V. arvensis *Murr.*: *Forst. in E. Bot. Suppl.* t. 2712.

Banks and cultivated fields, frequent. *β*. Corn-fields. *Fl.* the whole summer. ☉. ♂. or ♃. — Extremely variable, especially in the size and colour of its *flowers*; yellow in *V. Curtisii* of Forster. *Stigma*, in this and the following species, capitate, obliquely perforated.

7. V. *lútea* Huds. (*yellow Mountain Violet or yellow Pansy*); perennial, stem much branched at the base filiform, leaves ovato-oblong crenate, stipules subpalmato-pinnatifid. *E. Bot.* t. 721; *Ed. Cat.* p. 15. V. grandiflora *Huds.* (not *Linn?*). V. Sudetica *Willd.* — *β*. flowers all purple. V. amœna *Sym.* — *γ*. leaves broadly ovate subcoriaceous, flowers deep yellow.

Mountainous pastures; frequent in Wales, the north of England and Scotland; *α*. and *β*. often growing together. *γ*. Isle of Arran: *Mr. S. Murray*. A small yellow *var.* is found by Mr. Tozer at the Land's End, Cornwall. *Fl.* May—Sept. ♃. — The *flowers* are generally of a pale yellow or sulphur colour, much larger than those of *V. tricolor*: often the upper *petals* are purple, and in *β*. all are purple. Sir J. E. Smith distinguishes *V. lutea* from the *V. grandiflora* L. by the shortness of its spur; but M. Gay considers them identical. Distinct, however, as this is from *V. tricolor*, it is very difficult to define the characters in words.

Ord. X. DROSERACEÆ *DC.*

Sepals 5, persistent, equal. *Petals* 5. *Stamens* free, equal in number with the petals, or 2 or 3 or 4 times as many.

Ovary 1. *Styles* 3—5, often branched. *Capsule* 1—3-celled, 3—5-valved. *Valves* bearing the *seeds*, which are naked or arillate. — *Delicate* herbs, *of marshy ground*, in *Drosera* clothed with beautiful glandular and viscid hairs by which flies are abundantly destroyed: they give out too on the papers in which they are pressed a copious purple dye. In *Dionæa* the leaves are furnished with 2 remarkable spreading lobes, fringed with bristles and jointed as it were in the middle. These lobes are highly irritable on being touched by an insect, when they close upon and destroy the captive.

1. Drósera *Linn.* Sun-dew.

Cal. 5-cleft. *Pet.* 5. *Caps.* 1-celled, 3-valved, many-seeded. —(*Plants having leaves clothed with beautiful glandular hairs.*) — Name derived from δροσυς, *dew*. The glands exude a pellucid fluid, which makes this plant appear as if it were covered with dew. In Latin it is called *Ros-solis*, the same as the English *Sun-dew*.

1. D. *rotundifólia* L. (*round-leaved Sun-dew*); leaves radical orbicular spreading, petioles hairy, seeds chaffy. *E. Bot.* t. 867; *Ed. Cat.* p. 5.

Bogs and moist heathy ground, frequent. *Fl.* July. ♃. — *Leaves*, in all our species, covered with red pedunculated viscid *glands*, which retain insects. *Scape* 2—5 inches high, glabrous. *Flowers* racemed, secund, small, " each, as it successively occupies the apex of the perpendicular part of the scape, expanding, but if the day be not sunny, it never expands at all; but the next above it does when it arrives at the apex :" *J. E. Bowman*. *Styles* variable in number.

2. D. *longifólia* L. (*spathulate-leaved Sun-dew*); leaves radical spathulate very obtuse erect on long glabrous petioles, seeds with a compact rough coat not chaffy. *E. Bot.* t. 868; *Ed. Cat.* p. 5.

Bogs and moist heathy ground, not uncommon; more frequent in the south than in the north. South of Ireland. *Fl.* July. ♃. — Well distinguished from the following, by its rough, and not loose, coat to the *seeds*, a character long ago observed and figured by Heyne and Schkuhr and confirmed by Mr. W. Wilson. *Styles* often 8; *stigmas* deeply cloven. Mr. W. Wilson detected a curious monstrosity in the flower of this, having " one germen enclosed within another, and a third within the second; the external one open at the top and fringed with styles and abortive anthers. Rudiments of seeds lined the inner surface as usual. The inner germen had styles and anthers intermixed, and was closed at the top: the innermost was more imperfectly formed, but with rudiments of styles. There were 8 petals and about 6 perfect stamens in the flower." The same acute botanist, too, observed that " specimens [1]

[1] With me, in the Herbarium, both *D. Anglica* and *D. longifolia* retain the property of staining the papers that lie next to them for a great number of years; so that the form of the leaves, scapes, and flowers is distinctly repre-

gathered in Cheshire abounded in colouring matter, and stained the paper in which they were placed, after having been dried, of a deep, rusty red colour, which also penetrated several contiguous sheets ; — and that *D. rotundifolia*, on the same sheet, was found to possess a similar property, but in a much slighter degree."

3. D. *Anglica* Huds. (*great Sun-dew*); leaves radical linear-spathulate erect on very long glabrous petioles, seeds with a loose chaffy coat. *E. Bot.* t. 369 ; *Ed. Cat.* p. 5.

On bogs in several parts of Scotland, as far north as Ardnamurchan. Near Warrington, Lancashire. Bedfordshire, Norfolk, and probably in other counties. *Fl.* July, Aug. ♃. — This has much longer and narrower *leaves* than the last, and would better deserve the name of *longifolia*. But that character has never been considered (though I believe it is very constant) sufficient to separate this species from the last ; and a general opinion has prevailed, with myself as well as others, that the present was but a variety of *longifolia*. Now, however, that Heyne and Mr. Wilson have observed the true nature of its seed, an important and invariable character is established. Here the seed, as in *Pyrola* and *Orchis* and in *D. rotundifolia*, has a very loose, reticulated, even coat. In *D. longifolia* the coat firmly adheres to the rest of the seed, and is rough or papillose. " Embryo at the lower end of the seed, dicotyledonous : " *Wilson.*

Ord. XI. POLYGALEÆ *Juss.*

Sepals 5, the 2 inner generally large and petaloid. *Petals* 3—5, more or less united with the filaments of the *stamens*, which form 2 parcels, each with 4 *anthers*, opening by pores at the apex. *Ovary* 1, usually 2-celled. *Style* and *stigma* 1. *Fruit* a capsule, or drupaceous, 2- or 1-celled, dehiscence loculicidal. *Seeds* solitary, pendulous, often with a caruncle at the base. — Shrubs *or* herbs. Leaves *without stipules*. Flowers *usually racemose*. — Several of this family are used medicinally. The leaves are bitter ; the roots more or less milky. *Polygala Senega* is the snake-root of N. America. *Krameria* of Peru is powerfully astringent.

1. Polýgala *Linn.* Milkwort.

Cal. of 5 sepals, 2 of them wing-shaped, and coloured. *Petals* combined by their claws with the filaments, the lower one keeled. *Capsules* compressed. *Seeds* downy, crested at the hilum. — Name, πολυ, *much*, and γαλα, *milk*, from some fancied property in the plant.

1. P. *vulgáris* L. (*common Milkwort*); keel crested, flowers in a terminal raceme, wings of the calyx ovate about as long as the corolla, stems simple herbaceous procumbent, leaves linear

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sented through to the backs of the sheets on which they are fastened, and also upon the backs of several others which may have, at different times, lain above them ; and this though the specimens are perfectly dry.

or oblong. *E. Bot.* t. 76, *and Suppl.* t. 2827.; *Ed. Cat.* p. 10. P. amara *Don in E. Bot. Suppl.* t. 2764. P. calcarea *Sch.: Ed. Cat.* p. 10. P. oxyptera *Reich. Ic. Bot.* t. 24.

Dry hilly pastures, frequent. *Fl.* June, July. ♃. — *Stems* 4—8 inches long. *Cor.* beautifully crested, blue, purple, pink, or white. *Sepals* persistent, enclosing the *fruit*. My specimens of *P. amara* Don, gathered by the late *Mr. Christy* at Cuxton, Kent, in 1831, I can by no means separate from *P. vulgaris*, of which they are but a slight *var.* with broader and shorter leaves. The *P. amara* of DeCandolle and most of the continental botanists has very much smaller flowers and much larger radical leaves. Of this I have numerous specimens from Germany and Switzerland.

Ord. XII. FRANKENIACEÆ *St. Hil.*

Sepals 4—5, combined into a furrowed persistent tube. *Petals* 5, clawed, crowned at the mouth. *Stamens* 5 or more. *Ovary* 1. *Style* filiform, 2—3-cleft. *Capsule* 2—4-valved, 1-celled. *Seeds* minute, attached to the margins of the valves. *Embryo* straight in the albumen. — Herbaceous *or* suffruticose, *much branched.* Leaves *opposite, without stipules, but with a membranous sheathing base.*

1. Frankénia *Linn.* Sea-Heath.

Cal. of 1 sepal inferior. *Cor.* of 6 *petals.* *Stigmas* 3. *Caps.* of 1 cell, 3—4-valved; *valves* bearing many *seeds* at their margins. — Named from *John Franken*, a Swedish botanist and professor of medicine at Upsal, who died in 1661.

1. F. *lævis* L. (*smooth Sea-Heath*); leaves linear revolute at the margin glabrous ciliated at the base. *E. Bot.* t. 205; *Ed. Cat.* p. 5.

Muddy salt-marshes, about Yarmouth and the other eastern coasts of England. Isle of Sheppey, Kent. *Fl.* July. ♃. — A humble procumbent *plant*, with wiry *stems* and numerous fascicled *leaves*. *Flowers* pale rose-coloured, terminal or from the axils of the branches.

2. F. * *pulverulénta* L. (*powdery Sea-Heath*); leaves obovate retuse glabrous above, downy and pulverulent beneath, petiole ciliated. *E. Bot.* t. 2222; *Ed. Cat.* p. 5.

Found in the time of Dillenius and Hudson on the sea-coast of Sussex. *Fl.* July. ☉. — *Stems* prostrate, repeatedly dichotomous. *Flowers* smaller than in the preceding.

Ord. XIII. ELATINEÆ *Camb.*

Sepals 3—5. *Petals* 3—5, sessile. *Stamens* as many as or double the number of petals. *Ovary* with from 3—5 cells and as many *styles* and capitate *stigmas*. *Capsule* 3—5-celled and as many valved, alternate with the dissepiments which usually adhere to a central axis. *Seeds* numerous, with little *albumen*, a straight *embryo*, and *radicle* turned to the hilum. — *Small*

annuals, *inhabiting marshy places, with rooting stems and opposite stipuled leaves.*

1. ELATÍNE *Linn.* Water-wort.

Cal. inferior, 3—4-partite, persistent. *Pet.* 3—4. *Stam.* 3—4? or 6—8? *Styles* 4 or 3, very short. *Caps.* 3—4-valved, 3—4-celled, many-seeded. *Seeds* cylindrical, furrowed and transversely striated, attached to a central free receptacle. — Name said to be derived from ελατη, *a pine*, from which nothing can be more dissimilar than our present plant.

1. E. *hexándra* DeCand. (*small hexandrous Water-wort*); leaves opposite spathulate, flowers alternate pedicellate erect hexandrous tripetalous, capsule turbinate concave at the summit 3-celled, seeds about twelve in each cell straight ascending. *Reich. Ic. Bot.* t. 413; *Ed. Cat.* p. 5. E. tripetala, *E. Fl.* vol. ii. p. 243. E. Hydropiper, *E. Bot.* t. 955. (not *L.*)

Margins of ponds and ditches, rare. Bomere pool, near Condover, Shropshire: *Rev. E. Williams*. Near Binfield, Berks: *Mr. T. F. Forster*. Near Crawley, and Maresfield, Sussex: *Mr. Borrer*. Coleshill pool, Warwickshire: *Dr. Lloydd*. Very rare in Scotland, and only found at Loch Ruisky, near Callender, by *Mr. G. Lyon*. *Fl.* July, Aug. ☉. — A minute, procumbent, much branching plant, with axillary solitary *flowers*. *Petals* rose-coloured. *Seeds* most beautifully ribbed and transversely striated.

2. E. *Hydropíper* L. (*small octandrous Water-wort*); leaves opposite spathulate, flowers alternate sessile erect octandrous tetrapetalous, calyx shorter than the petals, segments ligulate, capsule roundish depressed 4-celled, seeds 16 in each cell pendulous much curved. *Hook. in E. Bot. Suppl.* t. 2670 (not *Sm.*); *Ed. Cat.* p. 5.

Discovered in 1830, by *Mr. J. E. Bowman*, at the E. end of Llyn Coron, Anglesea, growing with *E. hexandra*. Ireland, near Newry, *Mr. Thompson* of Belfast: and at the Lagan canal, where it enters Loch Neagh, the same spot where Sherard first discovered the *Subularia aquatica*, upwards of a century ago, *Mr. D. Moore*.

ORD. XIV. CARYOPHYLLEÆ *Juss.*

Sepals 5 or 4, persistent (in the tribe *Sileneæ* united into a tube). *Petals* as many, rarely wanting. *Stamens* as many as or double the number of the petals, inserted upon a fleshy disk or ring. *Ovary* 1, inserted (in *Sileneæ*) on a distinct fleshy pedicel or disk. *Styles* 2—5. *Capsule* 1—5-celled, 2—5-valved, with a central receptacle, which is free in the 1-celled capsules, in the rest adhering to the dissepiments. *Seeds* generally numerous. *Embryo* generally curved round a mealy *albumen*. — Herbs, *more or less tumid at the joints; with opposite entire leaves, without stipules except in the first division* of Arenaria (*a group which is now considered by some to form a distinct Genus, and referred to* PARONYCHIEÆ).

1. Diánthus *Linn.* Pink.

Cal. monophyllous, tubular, 5-toothed, with about 4 imbricated opposite *scales* or *bracteas* at the base. *Pet.* 5, clawed. *Stam.* 10. *Styles* 2. *Caps.* cylindrical, 1-celled. — Name derived from Ζευς, Διος, *Jupiter*, and ανθος, a *flower:* dedicated, as it were, to Deity itself; to express the high value that was set upon this charming genus of plants.

* *Flowers clustered.*

1. D. *Arméria* L. (*Deptford Pink*); flowers clustered fascicled, scales of the calyx lanceolate downy as long as the tube. *E. Bot.* t. 317; *Ed. Cat.* p. 4.

Pastures and hedges; not uncommon in England and Scotland. In fields at Carse, Angus-shire. Leetown in the Carse of Gowrie. *Fl.* July, Aug. ☉. — 1—1½ foot high, branched upwards. *Leaves* linear, opposite and connate, slightly pubescent; upper ones acute. *Limb* of the *petals* rose-coloured, with white (not red, as mentioned in *E. Bot.*) dots, crenate at the margin. *Flowers* scentless.

2. D. *prólifer* L. (*proliferous Pink*); flowers clustered capitate, scales of the calyx ovate blunt membranous longer than the tube, leaves rough at the edge. *E. Bot.* t. 956; *Ed. Cat.* p. 4.

Gravelly pastures, in England, rare; Selsey island, Sussex; near Hampton-court; near Norwich; and at Hanby Castle, Worcestershire. Hyde, Isle of Wight. Jersey: *Babington and Christy. Fl.* July. ☉. — Readily distinguished by its small, deep-coloured *flowers*, of which only one in a head expands at a time, and by the large, dry, brown, and membranaceous *scales* which envelope the *calyces* of several flowers. *Limb* of the *petals* obcordate, notched.

** *Flower solitary; one or more on the same stem.*

3. D. * *Caryophýllus* L. (*Clove Pink, Carnation*, or *Clove Gillyflower*); stem branched, flowers mostly solitary, scales of the calyx 4 very short ovate submucronate, petals broad crenated, leaves linear-subulate grooved glaucous. *E. Bot.* t. 214; *Ed. Cat.* p. 4.

On ruined walls, as at Norwich; old arch of Westonhanger, and on the Castles of Deal, Sandown, Rochester, &c. *Fl.* July. ♃. — Few persons, on seeing this plant as it grows on old walls, would suppose it was the origin of one of the "fairest flowers o' the season,"

"The curious choice Clove *July-flower*,"

or *Carnation* of our gardens, with its endless diversity of colour and form; yet such it is always considered to be. It varies, with the *limb* often bearded, and rarely, with a beautiful deep purple bar at the base of the limb; the *pet.* doubly cut and jagged; *stam.* often exserted. A hairy *var.* is also found in Kent: *Rev. G. E. Smith. Mr. Leighton* (*Shropsh. Fl.* p. 188.) gives the *D. plumarius* L. as an inhabitant of old walls at Ludlow and Lufford, and Haughmond Abbey; and says that the only true stations for *D. Caryophyllus* are the Kentish castles.

4. D. *deltoides* L. (*Maiden Pink*); flowers solitary, scales of the calyx about 2 ovato-acuminate short, leaves bluntish somewhat downy, petals crenate glabrous. *E. Bot.* t. 61; *Ed. Cat.* p. 4. — β. scales of the calyx mostly 4, petals nearly white. D. glaucus *L.*

Borders of fields, banks and hedges, on a gravelly or sandy soil, in England and Scotland, extending as far north as Ross-shire. About Edinburgh, &c., where, in the King's Park, grows the *var.* β. *Fl.* July, Aug. ♃. — A small plant, much branched even from its very base. *Petals* very beautiful, rose-coloured, spotted with white, with a white eye enclosed in a deep purple ring.

5. D. *cæsius* Sm. (*Mountain Pink*); stems mostly single-flowered, scales of the calyx short roundish, leaves scabrous at the margin, petals unequally jagged. *E. Bot.* t. 62; *Ed. Cat.* p. 4.

On limestone rocks at Cheddar, Somersetshire. *Fl.* June, July. ♃. — This exceedingly rare plant has very glaucous *foliage*, and comparatively large, fragrant *flowers*, of a delicate rose-colour.

2. Saponária *Linn.* Soapwort.

Cal. monophyllous, tubular, 5-toothed, without *bracteas* at the base. *Pet.* 6, clawed. *Stam.* 10. *Styles* 2. *Capsule* oblong, 1-celled. — Named from *sapo, soap;* the plant yielding a mucilaginous juice, which has been employed in lieu of that useful article.

1. * S. *officinális* L. (*common Soapwort*); leaves ovato-lanceolate, calyx cylindrical glabrous. *E. Bot.* t. 1060; *Ed. Cat.* p. 12.

Road-sides, margins of woods, and hedge-banks, especially near cottages. *Fl.* July, Aug. ♃. — 1—1½ foot high, with a rather stout cylindrical *stem*. *Leaves* ribbed, opposite and connate. *Panicle* of numerous large, rose-coloured *flowers*. *Limb* of the *corolla* obcordate. — This plant makes a lather with water.

(S. *Vaccaria* L. has been found in corn-fields, but doubtless introduced; and *Cucubalus baccifer* L., given by Ray as a native of Anglesea, and thence published in *E. Bot.* t. 1577, but since discarded, has, it is said, been found in the Isle of Dogs, by Mr. Luxford: but there is no reason for considering it a native.)

3. Siléne *Linn.* Catchfly.

Cal. monophyllous, tubular, often ventricose, 5-toothed. *Pet.* 5, clawed, mostly crowned at the mouth, and the *limb* generally notched or bifid. *Stam.* 10. *Styles* 3. *Caps.* 3-celled, 6-toothed, many-seeded. — Name supposed to arise from σιαλον, *saliva*, in allusion to the viscid moisture on the stalks of many species; hence, too, the English name *Catchfly*.

* *Stems tufted, short. Peduncles single-flowered.*

1. S. *acaúlis* L. (*Moss Campion*); cæspitose, leaves linear ciliated at the base, peduncles solitary single-flowered, petals crowned slightly notched. *E. Bot.* t. 1081; *Ed. Cat.* p. 13.

Rocky places on Snowdon. Abundant on all the Scottish mountains *Fl.* June, July. ♃. — *Stems* short, 2—3 inches high, much branched and tufted. *Leaves* patent. *Flowers* beautiful purple, and apparently dicœcious. — One of the greatest ornaments of our alps; not unfrequently found with white *flowers*.

** *Stems elongated. Flowers solitary or panicled. Calyx inflated, bladdery.*

2. S. *infláta* Sm. (*Bladder Campion*); flowers numerous panicled, petals deeply cloven with narrow segments scarcely crowned, calyx inflated reticulated, stem erect, leaves ovato-lanceolate. *Ed. Cat.* p. 13. Cucubalus Behen, *E. Bot.* t. 164. — β. calyx, stem and leaves downy.

Pastures and road-sides, common. — β. near Cromer, Norfolk. Banks of the Clyde. *Fl.* June—Aug. ♃. — Whole plant glaucous, variable in the size and shape of its *leaves*, and in the more or less numerous *flowers*. *Petals* pure white. The downy variety maintains its characters after many years' cultivation in the Glasgow Botanic Garden. — Young seeds white: *Talbot.*

3. S. *marítima* With. (*Sea Campion* or *Catchfly*); panicles few-flowered, petals with a shallow cleft and broad segments crowned, calyx inflated reticulated, stems spreading, leaves ovato-lanceolate or spathulate. *E. Bot.* t. 957; *Ed. Cat.* p. 13. S. inflata β., *Hook. Scot.* i. p. 135.

Frequent upon the sea-shore in sandy and stony places, as well as by alpine rills. *Fl.* June—Aug. ♃. — This, although it has smaller *stems* and *leaves* than the last, has larger *flowers*; yet I will not say I have done right in again raising it to the rank of a species. Mr. W. Wilson finds a *var.* in Caernarvonshire with a *panicle* of 7 *flowers*. In this and the preceding, the *styles* are variable in number. — Young seeds of a fine lively purple: *Talbot.*

*** *Stems elongated. Flowers in racemes, and whorled.*

4. S. *Otites* Sm. (*Spanish Catchfly*); stems erect nearly simple with few leaves, flowers in whorls dicœcious, petals linear entire, leaves spathulate. *Ed. Cat.* p. 13. Cucubalus Otites, *E. Bot.* t. 85.

Sandy fields, chiefly in Norfolk, Suffolk, and Cambridgeshire. *Fl.* July, Aug. ♃. — Remarkable for its small, unassuming, dicœcious *flowers*, with their linear, yellowish, entire *petals*.

**** *Stems elongated, branched. Flowers in leafy racemes, alternate.*

5. S. *Anglica* L. (*English Catchfly*); hairy and viscid, petals (small) crowned slightly bifid, calyces with setaceous teeth ovate in fruit and sometimes reflexed. *E. Bot.* t. 1178; *Ed. Cat.* p. 13.

Sandy and gravelly fields; in Surrey, Cambridgeshire, Hertfordshire, and Norfolk; South Port, Lancashire, and North Wales. Cornwall. Between Dundee and St. Andrew's; near Perth. *Fl.* June, July. ⊙. — More or less viscid. *Leaves* lanceolate, the lower ones spathulate. *Flowers* solitary from the axils of the upper leaves. *Calyx* at first cylindrical, scarcely shorter than the *petals*, erect; at length the *lower* ones, when in fruit, have their pedicels often singularly reflected. *Petals* mostly white, sometimes with a faint tinge of red in the middle, in which case the whole plant much resembles the following species.

6. S. **quinquevúlnera* L. (*variegated Catchfly*); pubescent, limb of the petals roundish entire, flowers secund, calyces with setaceous teeth and always erect very hairy. *E. Bot.* t. 86. *Ed. Cat.* p. 13.

Sandy corn-fields, near Wrotham, Kent. Duppa's Hill, by Croydon. *Fl.* June, July. ⊙. — A common annual in our gardens, which derives its Latin specific name from the 5 deep red spots on its *petals* resembling marks of blood, but which become more or less faint in cultivation.

***** *Stems panicled, leafy. Calyx not bladdery.*

7. S. *nútans* L. (*Nottingham Catchfly*) flowers panicled secund cernuous, branches opposite, calyx cylindrical ventricose, petals deeply cloven their segments linear crowned, leaves (of the stem) lanceolate pubescent. *E. Bot.* t. 465; *Ed. Cat.* p. 13.

Limestone rocks, and chalky cliffs in England. About Nottingham. Ormeshead, Caernarvonshire. Knaresborough, Yorkshire; Dove Dale, Derbyshire. North Queensferry and near Arbroath, Scotland. *Fl.* June, July. ♃. — 1—1½ ft. high. *Root-leaves* spathulate, acute. *Petals* rather large, white (expanding only at night): *Talbot.*

8. S. * *Itálica* DC. (*Italian Catchfly*); flowers panicled nearly erect, branches opposite, calyx long clavate, petals deeply bifid not crowned the segments broad, radical leaves spathulate on long stalks, cauline ones sessile linear-lanceolate. *Ed. Cat.* p. 13. S. paradoxa *Sm.: Fl. Brit.* p. 467 (not of *Linn.*); *Reichenb. Icon. Bot.* t. 292 (excellent). S. patens *Peete in E. Bot. Supp.* t. 2748.

Cliffs at Dover: *Mr. Peete. Fl.* June, July. ♃. — This may be at once known from *S. nutans* by the much longer and more clavate calyx, the absence of a crown to its petals, and their broader segments. These *petals* are white. The whole plant is more or less downy, the *panicles* slightly viscid.

9. S. *cónica* L. (*striated Corn Catchfly*); panicle forked, petals bifid crowned, leaves linear downy, calyx in fruit conical with numerous furrows. *E. Bot.* t. 922; *Ed. Cat.* p. 13.

At New Romney and Sandown Castle, Kent. Near Bury: *Mrs. M. A. Blake. Fl.* July. ⊙. — *Petals* purple, small. *Calyx* of the flower almost tubular, of the fruit so broad and swollen at its base as to be nearly conical. It is moreover finely striated.

10. S. *noctiflóra* L. (*Night-flowering Catchfly*); panicle forked, petals bifid, calyx with long teeth oblong in fruit with 10 connected ribs, leaves lanceolate lower ones spathulate. *E. Bot.* t. 291; *Ed. Cat.* p. 13.

Corn-fields in a sandy or gravelly soil, in several counties of England. Coast of Angus-shire, Scotland. Near Inveresk. *Fl.* July. ⊙. — 1 foot or more high. *Leaves* much like the last, pubescent. Upper part of the *stem* many times dichotomous, each branchlet terminated with a single flower, and a solitary flower in the axil of the fork. *Flowers* rather large, sweet-scented, pale-reddish, almost white. *Peduncles* viscid.

****** *Stems elongated. Flowers corymbose. Calyx clavate.*

11. S. **Arméria* L. (*common* or *Lobel's Catchfly*); panicles forked corymbose with crowded flowers, petals notched and crowned with awl-shaped scales, calyx clavate and as well as the leaves glabrous, leaves ovato-lanceolate, stem viscid. *E. Bot.* t. 1398; *Ed. Cat.* p. 13.

Banks of the Dee, half a mile from Chester; now extinct: *J. E. Bowman, Esq. Fl.* July, Aug. ⊙. — Extremely common in gardens.

4. Lýchnis *Linn.* Campion.

Cal. monophyllous, tubular, 5-toothed. *Pet.* 5, clawed, crowned at the mouth, mostly divided at the border. *Stam.* 10. *Styles* usually 5. — Named from λυχνος, a *lamp;* the thick cottony substance on the leaves of some species, or some similar plant, having been employed as wicks to lamps.

1. L. *Flos-Cúculi* L. (*Meadow Lychnis* or *Ragged Robin*); flowers loosely panicled, petals 4-cleft. *E. Bot.* t. 573; *Ed. Cat.* p. 8.

Moist meadows and pastures, frequent. *Fl.* June. ♃. — 1—2 ft. high, hairy below, reddish-green, clammy above. *Leaves* lanceolate. *Calyx* and *flower-stalks* reddish-purple. *Petals* rose-coloured.

2. L. *Viscária* L. (*red German Catchfly*); petals slightly notched at the extremity, capsule 5-celled stalked, stem clammy at the joints. *E. Bot.* t. 788; *Ed. Cat.* p. 8.

Dry alpine rocks; on Craig Breiddin, Montgomeryshire; and about Edinburgh, Newburgh, near Airly Castle, Bridge of Earne, and Den of Balthayock, Perthshire. *Fl.* June. ♃. — One foot high, glabrous. *Leaves* lanceolate, acuminate. *Flowers* in a compact *panicle*, large, rose-coloured.

3. L. *alpína* L. (*red alpine Campion*); glabrous, petals bifid, flowers corymboso-capitate, capsule 1-celled. *E. Bot.* t. 2254; *Ed. Cat.* p. 8.

Rocks on the summit of the Clova mountains: *G. Don.* Since found there abundantly at an elevation of about 3200 feet above the level of the sea, by *Sir John Ogilvie, Mr. M'Nab, and Dr. Graham. Fl.* June,

July. ♃. — 5—6 inches high, by no means viscid. *Leaves* lanceolate. *Flowers* rather small, rose-coloured. Dr. Graham remarks that the young capsule is 5-celled.

4. L. *dioica* L. (*red* or *white Campion*); flowers dicœcious, capsule of 1 cell. — α. flowers red. L. dioica, *E. Bot.* t. 1579; *Ed. Cat.* p. 8. L. diurna *Sibth.: Ed. Cat.* p. 8. L. sylvestris *Hop.: DeCand.* — β. flowers white. *E. Bot.* t. 1580. L. vespertina *Sibth.: Ed. Cat.* p. 8. — γ. flowers flesh-coloured, with stamens and pistils together. *Sm.*

Under hedges and in grass-fields, common. — α. Frequent in Devon and Cornwall; rare in Cambridge. — β. Common in Cambridge; rather rare in Devon and Cornwall. — γ. Dundee; with hermaphrodite flowers: *Mr. W. Gardiner, jun.* — *Fl.* — α. May and June. — β. and γ. June—Sept. ♃. — 1—2 ft. high, panicled above, pubescent, viscid in a slight degree about the joints of the stem. *Leaves* ovate, or ovato-lanceolate. *Calyx* in the anther-bearing flowers sub-cylindrical, in the fruit-bearing ones ovate. In β. the *petals* are pure white and the flowers fragrant in the evening.

5. Agrostémma *Linn.* Cockle.

Cal. monophyllous, tubular, coriaceous, with 5 teeth. *Pet.* 5, clawed, their border undivided. *Stam.* 10. *Styles* 5. *Caps.* opening with 5 teeth, 1-celled. — Name; αγρου στεμμα, *Crown of the field*, peculiarly applicable to our species, which is a great ornament to corn-fields.

1. A. *Githágo* L. (*Corn Cockle*); calyx much longer than the corolla, petals entire destitute of a crown. *E. Bot.* t. 741. Lychnis, *Ed. Cat.* p. 8.

Corn-fields, too frequent. *Fl.* June, July. ♃. — A genus scarcely different from *Lychnis*. 1—2 feet high, branched, erect. *Leaves* linear-lanceolate. *Cal.* ribbed, its segments very long and slender. *Flowers* large, purple. *Seeds* from their number and size injuring the quality of the grain with which they are thrashed. *Git* or *Gith*, Théis says, is the Celtic name for a peculiarly large and black seed; whence comes *Githago*.

6. Bufónia *Sauv., Linn.* Toad-grass.

Cal. of 4 sepals. *Cor.* of 4 entire petals. *Stam.* 4. *Styles* 2. *Caps.* flattened, 1-celled, 2-valved, 2-seeded. — Name given by Sauvages in honour of the celebrated *Buffon*, "who had indeed very slender pretensions to botanical honour; a circumstance supposed to have been indicated by Linnæus in the specific name *tenuifolia*." [1] *Sm.*

[1] Ray, however, and authors subsequent to Linnæus, called the plant "Alsine polygonoides *tenuifolia*," as has been pointed out to me by Mr. Hanson. *Bufonia*, indeed, is the original spelling, and so called, some say, from the plant growing in places frequented by toads. "Nomen, iniqua mente, a L. in *Bufoniam* (in *Buffonia*) mutatum esse, probent ii, qui narrant," says Richter.

1. *B. *ánnua* DC. (*annual Buffonia*); stem loosely panicled from the base, branches spreading short firm, striæ on the calyx straight parallel, capsules scarcely so long as the cal., leaves subulate spreading at the base. *DC., Ed. Cat.* p. 2. B. tenuifolia, *E. Bot.* t. 1813 (not of *Linn.* which is B. perennis *DC.*)

Said to have been found in Plukenet's and Dillenius' time, about Boston in Lincolnshire, and on Hounslow Heath; but no one has seen it there since. Sir Joseph Banks was persuaded that, in Lincolnshire, the *Bupleurum tenuissimum* had been mistaken for it. *Fl.* June. ⊙: *Sm.*

7. Sagína *Linn.* Pearl-wort.

Cal. of 4 sepals. *Petals* 4 (shorter than the calyx). *Stam.* 4. *Styles* 4. *Capsule* 1-celled, 4-valved. — The name (signifying *meat which fattens*) is little applicable to any of the minute plants belonging to this genus.

1. S. *procúmbens* L. (*procumbent Pearl-wort*); perennial, glabrous, stems procumbent, leaves shortly mucronate, petals much shorter than the calyx. *E. Bot.* t. 880; *Ed. Cat.* p. 11.

Waste places, and dry pastures, frequent. *Fl.* May—Aug. ♃. — *Stems* spreading, 2—4 inches long, in alpine situations growing amongst *Spergula subulata*, from which it is with difficulty distinguished; and often sending out roots from different parts of the stem at the insertion of the leaves, and these throwing up new plants. *Leaves* linear-subulate, connate, membranous at the margins at the base, tipped with a short pellucid point or mucro. *Peduncles* solitary, axillary and terminal, about an inch long. *Flowers* at first drooping. "A pubescent *var.* occurs in Sussex:" *Mr. Borrer.*

2. S. *apétala* L. (*annual small-flowered Pearl-wort*); annual, stems slightly hairy erect or ascending, leaves aristate fringed, petals much smaller than the calyx. *E. Bot.* t. 881; *Ed. Cat.* p. 11.

Dry gravelly places, on walls, &c. frequent and sometimes growing upon the sea-shore with the following species. *Fl.* May, June. ⊙. — Slenderer than the last, smaller and annual. *Leaves* narrower, more bristle-pointed, more glaucous and slightly hairy at the margins, sometimes glabrous. *Stems* also hairy. *Petals* always present, according to Mr. W. Wilson, obcordate, or wedge-shaped and truncated. A glabrous *var.* is found in the Channel Islands, and at Henfield, Sussex.

3. S. *marítima* Don (*Sea Pearl-wort*); annual glabrous, stems erect or procumbent only at the base, leaves fleshy obtuse, petals none, calyx rather longer than the capsule. *Don's Hort. Sicc. Br.* n. 155; *E. Bot.* t. 2195; *Hook. in Fl. Lond. N. S.* t. 115; *Ed. Cat.* p. 11. S. stricta *Fries* and *Svensk. Bot.* t. 562. f. 2.

Sea-coast of England, Ireland, and Scotland, not unfrequent. *Fl.* May, Aug. ⊙. — A very distinct and well-marked species, with a reddish or purplish tinge, especially on the *stems* and *calyces*. Quite glabrous. *Petals* altogether wanting. *Cal.* blunt, longer than the *capsule*. *Leaves* without any apiculus, fleshy, "rounded at the back:" *Wilson.*

8. Mœnchia *Ehrh.* Mœnchia.

Cal. of 4 sepals. *Petals* 4 (as long as the cal.). *Stam.* 4 or 8. *Styles* 4. *Caps.* of 1 cell, opening with 8 teeth at the extremity. — Name given in compliment to *Conrad Mœnch,* Professor of Botany at Hesse Cassel.

1. M. *erécta* Sm. (*upright Mœnchia*). *E. Fl.* v. i. p. 241 ; *Ed. Cat.* p. 8. M. glauca *Pers.* Sagina erecta *Linn.: E. Bot.* t. 609.

Pastures, in a gravelly soil. *Fl.* May. ⊙. — *Stem* 2—4 inches high, erect or frequently a little reclining at the base, glabrous as well as the *leaves,* which are opposite, linear-lanceolate, acute, rigid, glaucous. *Cal. sepals* large, acuminate, white and membranous at the margin. *Pet.* lanceolate, entire, as long as the calyx. *Capsule* as in *Cerastium.*

9. Holósteum *Linn.* Jagged Chickweed.

Cal. of 5 sepals. *Pet.* 5, jagged at the point. *Stam.* 5, 3 or 4. *Styles* 4. *Caps.* 1-celled, opening at the extremity with 6 teeth. *Seeds* furrowed on one side, dotted. *Embryo* folded.—Named from ὁλος, *all,* and οστεον, *bone,* by antiphrasis, the texture being the very reverse, soft and delicate.

1. H. *umbellátum* L. (*Umbelliferous Jagged Chickweed*); leaves elliptical ovate acute, flowers umbellate, peduncle pubescent viscid, pedicels reflexed after flowering at length erect. *E. Bot.* t. 27 : *Ed. Cat.* p. 7. Cerastium *Huds. & Hook. in Fl. Lond. N. Ser.* t. 13.

Rare, on old walls about Norwich and Bury. *Fl.* April. ⊙. — A singular and interesting plant, the original *Holosteum* of Linnæus.

10. Spérgula *Linn.* Spurrey.

Cal. 5-sepaled. *Pet.* 5, undivided. *Stam* 5—10. *Styles* 5. *Caps.* ovate, 5-celled, 5-valved. — Named from *spargo,* to *scatter ;* from the seeds being so widely dispersed.

1. S. *arvénsis* L. (*Corn Spurrey*); leaves whorled with minute membranaceous stipules at their base, stalk of the fruit reflexed, seeds more or less margined. *E. Bot.* t. 1536 ; *Ed. Cat.* p. 13. S. pentandra, *E. Bot.* t. 1535.

Corn-fields, too frequent, especially on light stony soils. *Fl.* June—Aug. ⊙. — *Stems* 6—12 inches high, swollen at the joints. *Leaves* 1—2 inches long, narrow, linear, terete, glabrous or a little pubescent, in two fascicles from each joint, spreading in a whorled manner. *Panicle* of many *flowers. Pet.* white, ovate, rather longer than the *calyx. Stam.* often 5. *Seed* varying exceedingly in the width of its margins. — Cattle are fond of this plant, and it is an object of culture in Holland.

2. S. *nodósa* L. (*knotted Spurrey*); leaves subulate opposite glabrous connate, the lower ones sheathing, upper ones bearing clusters of young leaves, petals much longer than the calyx. *E. Bot.* t. 694 ; *Ed. Cat.* p. 13.

Wet, sandy, and marshy places, frequent. *Fl.* July, Aug. ♃.—3—4 inches high, branched, and decumbent at the base, where the *leaves* are ¾ of an inch long, but they gradually become smaller upwards. *Flowers* large, white, 2—3 on the terminal branches, peduncled. Whole plant glabrous. *Cal.* nerveless.

3. S. *saginoídes* L. (*Pearlwort Spurrey*); glabrous, leaves subulate acute awnless, peduncles solitary very long, petals shorter than the calyx, capsule twice as long. *E. Bot.* t. 2105; *Ed. Cat.* p. 13.

Highland mountains, frequent. *Fl.* June, July. ♃.—*Stems* many from the root, procumbent below, 2 or 3 inches in length. *Leaves* numerous and rather long at the base, shorter and in remote pairs upon the stem. *Flower* drooping before and after expansion; *capsule* erect.

4. S. *subuláta* Swartz (*Awl-shaped Spurrey*); leaves subulate subciliated tipped with a bristly point, peduncles solitary very long, petals and capsule as long as the calyx. *E. Bot.* t. 1082; *Ed. Cat.* p. 13. S. saginoides *Curt.* S. laricina *Lightf.*: *Fl. Dan.* t. 858. Sagina procumbens β. *Linn.*

Dry, gravelly, and stony pastures. *Fl.* July, Aug. ♃.—This comes very near the last species, nor is it easy at all times to discriminate between them. Mr. W. Wilson cannot distinguish the Anglesea *S. subulata* from the Ben Lawers *S. saginoides*; which latter perhaps is but an alpine *var.* of the former, though the original species of *Linn.* Both have very much the habit of *Sagina procumbens.*

11. Stellária *Linn.* Stitchwort.

Cal. of 5 sepals. *Pet.* 5, deeply cloven. *Stam.* 10. *Styles* 3. *Caps.* opening with 6 teeth, many-seeded.—Named from *stella*, a *star*; because the corolla spreads in a star-shaped manner.

1. S. *némorum* L. (*Wood Stitchwort*); leaves petiolate cordate, upper ones ovate sessile, panicle dichotomous. *E. Bot.* t. 92; *Ed. Cat.* p. 13.

In moist woods, principally in the North of England and Lowlands of Scotland. *Fl.* May, June. ♃.—*Stems* weak, 1—1½ feet high, pubescent above. *Leaves* very large, glabrous, but rough with extremely minute elevated dots, sometimes ciliated at the margin. *Sepals* white at the edges. *Petals* narrow, deeply bifid, pure white.

2. S. *média* With. (*common Chickweed*, or *Stitchwort*); leaves ovate, stems procumbent with an alternate line of hairs on one side, petals 2-partite, stamens 5—10. *E. Bot.* t. 537; *Ed. Cat.* p. 13. Alsine media *L.*

Road-sides and waste places, abundant. *Fl.* almost the whole year. ☉.—*Stem* weak, with alternate lines of hairs between each pair of leaves, by which the species is admirably distinguished. *Leaves*, except the uppermost, glabrous; on footstalks which are fringed with hairs. *Flowers* small, white, on solitary, axillary and terminal stalks.—It is a good pot-herb, and small birds are very fond of the seeds.

3. S. *holóstea* L. (*greater Stitchwort*); stem nearly erect, leaves lanceolate much acuminated finely ciliated, petals bifid twice as long as the nerveless calyx. *E. Bot.* t. 211; *Ed. Cat.* p. 13.

Woods and hedges, frequent. *Fl.* May. ♃. — *Plant* 1—1½ foot high, rather rigid and brittle, somewhat glaucous. *Flowers* large and with much broader *petals* than the two following, pure white. *Panicle* of few flowers, leafy. — *Calyx* sometimes proliferous: *H. F. Talbot, Esq.*

4. S. *gramínea* L. (*lesser Stitchwort*); stem nearly erect, leaves lanceolate acute entire, panicle much branched, petals very deeply cleft, segments linear scarcely longer than the 3-nerved sepals. *E. Bot.* t. 803; *Ed. Cat.* p. 13.

Dry pastures, fields, and heaths, common. *Fl.* May. ♃. — 1 foot high, more slender than the last, and readily distinguishable by its much smaller *flowers;* large and branching *panicle;* 3-nerved *calyx;* and entire *leaves*, which are, moreover, by no means so much acuminated.

5. S. *glaúca* With. (*glaucous Marsh Stitchwort*); stem nearly erect, leaves linear-lanceolate entire glaucous, flowers upon long solitary axillary footstalks, petals very deeply cleft their segments much longer than the 3-nerved calyx. *E. Bot.* t. 825; *Ed. Cat.* p. 13.

Wet marshy places, margins of lakes, &c. *Fl.* June, July. ♃. — Equally slender with the last, 1 foot high. *Flowers* next in size to those of *S. holostea.* Readily known from that and *S. graminea* by its narrower, glaucous *leaves;* solitary, axillary *flowers;* and the narrow *sepals*, which, as in the last, are three-nerved.

6. S. *uliginósa* Murr. (*Bog Stitchwort*); leaves ovato-lanceolate entire with a callous tip, flowers in dichotomous panicles, petals bipartite shorter than the sepals, which are combined at the base. *E. Bot.* t. 1074; *Ed. Cat.* p. 13. S. graminea *β. L.*

In ditches and rivulets, frequent. *Fl.* June. ☉. — This species, besides having the *sepals* combined at the base, has truly perigynous *stamens* and *petals.* St. Hilaire, who makes of it his genus *Larbræa* (in honour of the *Abbé de Larbre*), seems to think it more allied to his Order *Paronychieæ* than to the *Caryophylleæ.* Its general habit, however, is surely that of a *Stellaria*, from all the other species of which it is distinguished by the comparatively minute *petals.*

7. S. *cerastoídes* L. (*alpine Stitchwort*); stem decumbent with an alternate hairy line, leaves oblongo-spathulate, peduncles 2 or 3 mostly terminal downy as is the calyx which is about half the length of the bifid corolla. *E. Bot.* t. 911; *Ed. Cat.* p. 13.

Breadalbane mountains of Scotland, and mountains to the north of that great range. *Fl.* July, Aug. ♃. — 4—6 inches long. Lower part of the *stem* bare of leaves and much branched. *Leaves* glabrous or hairy, subsecund and subfalcate, as observed by Wahlenberg; their

points callous. *Flowers* large, pure white. Sir J. E. Smith states that the *styles* are sometimes 4 and 5; and the *capsules*, on my specimens, have some 6 and some 10 teeth; so that this plant has as great a claim to rank with the *Cerastia* as with the *Stellariæ*.

8. S. *scapígera* Willd. (*many-stalked Stitchwort*); stem shorter than the flower-stalks, leaves linear-lanceolate crowded pubescenti-scabrous at the margin, calyx 3-nerved as long as the petals. *E. Bot.* t. 1269 (leaves too broad); *Ed. Cat.* p. 13.

Hills to the north of Dunkeld and about Loch Nevis: *G. Don. Fl.* June. ♃. — I possess only cultivated specimens of this remarkable plant, which was first described by Willdenow. He attributes to it single-flowered *peduncles;* but in my plants these peduncles, of which many arise from the extremity of very short *stems*, are mostly branched in the middle, where they have 2 small, ovate, acute, membranaceous *bracteas*.

12. Arenária *Linn.* Sandwort.

Cal. of 5 sepals. *Pet.* 5, undivided. *Stam.* 10. *Styles* 3. *Capsule* 1-celled, many-seeded. — Named from *arena, sand;* the greater number of species growing in sandy soils.

* *Stipules none.*

1. A. *peploídes* L. (*Sea-side Sandwort*); glabrous, leaves ovate acute fleshy, calyx obtuse ribless. *E. Bot.* t. 189. Adenarium *Rafin.* Alsine, *Ed. Cat.* p. 1.

On sandy sea-shores, frequent. *Fl.* July. ♃. — *Root* long and creeping, slender. *Stems* decumbent at the base; *branches* erect, leafy upwards. *Leaves* large, decussate, connate, fleshy, shining, a little recurved. *Flowers* solitary or 2—3 together, in the axils of the upper leaves, nearly sessile, closing in the shade. *Petals* white, small, scarcely longer than the *calyx*, distant, broadly ovate, shortly clawed. Surrounding the *germen* are 10 *glands*, alternating with the *stamens*. *Capsule* large, roundish, 3—5-valved, with comparatively few, large, and black *seeds*. — The habit of this is very different from the rest of the genus, and it is said that the flowers are diœcious. It is certain that very extensive patches of the plant have abortive flowers.

2. A. *trinérvis* L. (*three-nerved Sandwort*); leaves ovate acute petiolate 3- (rarely 5-) nerved ciliated, flowers solitary, sepals rough on the keel with three obscure ribs. *E. Bot.* t. 1483. Mœhringia trinervis, *Ed. Cat.* p. 8.

Shady woods and moist places. *Fl.* May. ☉. — *Stems* 1 foot high, much branched, pubescent. Upper *leaves* sessile. *Flower-stalks* an inch or more long, from the forkings of the extremities of the stem; in *fruit* spreading, the upper part deflexed. *Petals* oblongo-obovate, white, scarcely longer than the acute *segments* of the *calyx*.

3. A. *serpyllifólia* L. (*Thyme-leaved Sandwort*); leaves ovate acute subscabrous sessile, calyx hairy its outer sepals 5-ribbed. *E. Bot.* t. 923; *Ed. Cat.* p. 2.

Walls and dry waste places, frequent. *Fl.* June. ⊙. — 2—6 inches in length, erect or procumbent, much branched, pubescent. *Leaves* small, rather rigid. *Flowers* white, on short stalks, from the forkings of the upper part of the stem or the axils of the leaves. *Petals* as long as the *calyx*. — Mr. W. Wilson finds a *var.* at Bangor, with five stamens, and the petals only ¼ as long as the calyx, which has prominent ribs.

4. A. *ciliáta* L. (*fringed Sandwort*); rigid, leaves spathulate roughish ciliated, stems much branched procumbent downy, branchlets 1—2-flowered, sepals half as long as the corolla lanceolate acute with 3—5 prominent ribs. *E. Bot.* t. 1745; *Ed. Cat.* p. 2.

Mountains in Ireland, rare. Limestone cliffs, near Ben Bulben, a mountain in Sligo: *Mr. J. T. Mackay.* *Fl.* Aug., Sept. ♃.

5. A. *Norvégica* Gunn (*Norwegian Sandwort*); leaves spathulate fleshy glabrous as well as the much-branched procumbent stems, branchlets 1—3-flowered, sepals half as long as the cor. ovate acute with 3—5 obscure ribs. *Fl. Dan.* t. 1269; *E. Bot. Suppl.* t. 2852; *Ed. Cat.* p. 2. A. ciliata β. *Willd.*

Unst, in the Shetland Islands; first discovered by *Mr. Thomas Edmonstone, Jun.*, an enthusiastic naturalist, then only eleven years of age, and ascertained to be new to Britain by *Dr. M'Nab*, on his visit to those islands in 1837. *Fl.* July. ♃. — A plant with altogether the mode of growth and general aspect of *A. ciliata*; but the *leaves* are succulent and everywhere glabrous, and the *sepals* are broader and obscurely ribbed.

6. A. *vérna* L. (*vernal Sandwort*); stems numerous panicled above, leaves subulate acute when dry 3-nerved, petals obovate and as well as the capsule about as long as the lanceolate acuminated 3-nerved sepals. *E. Bot.* t. 512. Alsine, *Ed. Cat.* p. 1.

Rocky and mountainous pastures, in the north of England and Wales; abundant on Arthur's Seat and in other places about Edinburgh; Mael Dun Crosk, Breadalbane: not found at all in the west of Scotland. *Fl.* May, June. ♃. — *Stems* 3—4 inches high, slightly hairy, as are the *calyces* and *peduncles*. Lower *leaves* crowded, often curved.

7. A. *rubélla* Hook. (*alpine Sandwort*); stems numerous, peduncles terminal downy single-flowered, leaves linear-subulate obtuse 3-nerved, petals elliptico-lanceolate and as well as the 4-valved capsule shorter than the lanceolate very acute 3-nerved calyx. *Hook. in Parry's 2d Voy. App.*; *in Fl. Lond. N. S.* t. 200; *Don in E. Bot. Suppl.* t. 2638. Alsine rubella *Wahl.*: *Ed. Cat.* p. 1. Arenaria quadrivalvis *Br.*

Near the summits of the Breadalbane mountains, among soil and broken rocks; very rare. On Craigalleach: *Dr. Earl.* On Ben Lawers; first found, as now appears, by *Mr. Don*; since by *Mr. Murray, Dr. Greville*, and in one spot most abundantly by *Mr. W. Wilson* and *Dr. Graham*. Ben Hope, Sutherland: *Dr. Graham.* *Fl.* July. ♃. — This is quite an alpine or arctic plant. It loves to grow with its

root buried under a loose piece of rock, and late in the summer often acquires a reddish tinge. *Stamens* from a glandular disk. *Styles* 3, 4, or 5; the *valves* of the *capsule*, consequently, equally variable.

8. A. *tenuifólia* L. (*fine-leaved Sandwort*); stems much branched dichotomous panicled above, leaves narrow linear-subulate, petals lanceolate much shorter than the narrow lanceolate 3-nerved sepals, capsule 3-valved as long as the calyx. *E. Bot.* t. 219. Alsine, *Ed. Cat.* p. 1.

Sandy fields; Norfolk, Cambridgeshire, Oxfordshire, &c. Cramond Island, Firth of Forth; and near Pettycur Harbour, Scotland: *Mr. Yalden* and *G. Don. Fl.* June. ⊙. — *Stems* 4—6 inches high, glabrous; throughout remarkably slender, especially the *peduncles*.

9. A. *fastigiáta* Sm. (*level-topped Sandwort*); stems erect straight, leaves fascicled subulato-setaceous erect, flowers fascicled, sepals much acuminated (white) with two central (green) ribs twice as long as the ovate petals. *E. Bot.* t. 1744. Alsine, *Ed. Cat.* p. 1.

In Fifeshire and mountains of Angus-shire: *Mr. Don. Fl.* June. ⊙. — Sir J. E. Smith rightly distinguishes this, the *A. fasciculata* of Jacq., from the species so named by Gouan; of which very rare plant I possess Gouan's original specimen. Scottish individuals I have never met with; but, judging from the figure in *E. Bot.*, I do not see how this is to be separated from the *A. mucronata* of *DC.* (*Alsine* Gouan). It is very peculiar in habit, and quite unlike any other British species. The *seeds* "are beautifully toothed at the margin, each on a long stalk."

** *Stipules at the base of each pair of leaves.*

10. A. *rúbra* L. (*purple Sandwort*); stems prostrate, leaves narrow-linear acute plane somewhat fleshy tipped with a very minute bristle, stipules ovate cloven, capsule as long as the calyx, seeds compressed angular roughish. *E. Bot.* t. 852. Alsine, *Ed. Cat.* p. 1.

Gravelly or sandy soils, frequent. *Fl.* June. ⊙. — Very much branched and spreading. *Stipules*, a pair of ovate, acute, white, membranaceous *scales*, united at their base. *Flowers* numerous, in the axils of the upper *leaves*, solitary. *Calyx* nerveless, and, as well as the rather short *peduncles*, glandular and viscid. *Petals* ovate, red, about as long as the calyx. *Peduncles*, after flowering, slightly bent back. — The *seeds* constitute the essential character by which this is known from the following species.

11. A. *marína* Œd. (*Sea-side Spurrey Sandwort*); stems prostrate, leaves semicylindrical fleshy awnless, stipules ovate cloven, capsule longer than the calyx, seed compressed smooth with a broad membranous pellucid border. *E. Bot.* t. 958. Alsine, *Ed. Cat.* p. 1. A. rubra β. *L.*

Frequent upon the sea-coast. *Fl.* June, July. ⊙ or ♂. — Much larger and stouter in all its parts than the last, independent of the difference existing in the seed: still I am not sure that these marks

may not depend upon situation. Indeed I have now before me a pubescent *variety*, gathered in the Isle of Man by Mr. Wilson, in which the seeds are rough without a border; and another with the seeds smooth and without a border.

13. CERÁSTIUM *Linn.* Mouse-ear Chickweed.

Cal. of 5 sepals. *Pet.* 5, cloven. *Stam.* 10. *Styles* 5. *Caps.* bursting at the top with 10 teeth (5 in *C. aquaticum*). — Named (κερας, a *horn*) from the rather long and curved capsules of some species.

* *Petals not longer than the calyx.*

1. C. *vulgátum* L. (*broad-leaved Mouse-ear Chickweed*); hairy nearly erect viscid above, leaves ovate, bracteas herbaceous, petals as long as the calyx, flowers subcapitate, calyces oblong longer than their pedicels. *E. Bot.* t. 789. C. viscosum *Huds.* C. glomeratum, *Ed. Cat.* p. 3.

Fields, pastures, and road-sides, common. *Fl.* April—June. ⊙. — 6—10 inches high, branched below, dichotomous above. *Petals* narrow, bifid at the extremity. *Caps.* cylindrical, as long again as the *calyx*, curved upward.

2. C. *viscósum* L. (*narrow-leaved Mouse-ear Chickweed*); hairy viscid spreading, leaves oblongo-lanceolate, bracteas membranaceous at the margin, flowers somewhat panicled, calyces oblong shorter than the pedicels. *E. Bot.* t. 790. C. vulgatum *Huds.* C. triviale *Link: Ed. Cat.* p. 3.

Pastures and waste places, wall-tops, &c. *Fl.* the whole summer. ♃. — Much resembling the last, but a larger, coarser, and spreading plant; with longer and narrower *leaves*; *calyces* shorter than their footstalks in general, especially when in fruit.

3. C. *semidecándrum* L. (*little Mouse-ear Chickweed*); hairy viscid suberect, leaves oblong-ovate, bracteas membranaceous at the margin, flowers somewhat panicled, calyces ovate shorter than the pedicel, sepals with broad membranaceous margins, petals slightly cloven, stam. 5. *E. Bot.* t. 1630; *Ed. Cat.* p. 3. C. pumilum *Curt.: Ed. Cat.* p. 3.

Dry waste places, in sandy soil, on wall-tops, &c., frequent. *Fl.* March, April. ⊙. — This displays itself, as Sir J. E. Smith well observes, in early spring, on every wall, and withers away before the *C. viscosum* begins to put forth its far less conspicuous blossoms. *Sepals* acute, not "*obtuse*," longer than the *petals*. Reichenbach's figure (*Iconogr.* t. 181.) represents the petals deeply bifid, as in Smith's *var.* β., and the capsule scarcely longer than the calyx; whereas in *E. Bot.* it is figured twice as long and quite straight: which differences I find to exist in my own specimens. — Mr. W. Wilson thinks that this may be but an early flowering state of *C. viscosum*.

4. C. *tetrándrum* Curt. (*four-cleft Mouse-ear Chickweed*); "hairy and somewhat viscid, flowers four-cleft with four stamens, petals inversely heart-shaped shorter than the taper-

pointed calyx which is nearly as long as the capsule." *Sm.: Hook. Scot.* i. p. 143; *Ed. Cat.* p. 3. Sagina cerastoides, *E. Bot.* t. 166.

Waste ground, walls, and sandy places, especially near the sea. On the east of England (Yarmouth), the south (Sussex), and in Wales. About Edinburgh, Banks of Tweed. Howth, Ireland. *Fl.* May, June. ☉. — Sir J. E. Smith seems to consider this plant peculiar to the neighbourhood of Edinburgh; but I have received specimens corresponding with Edinburgh ones from the three most distant points of England. At the request of my excellent friend Mr. Borrer, I have again considered the opinion I offered in *Fl. Scot.*, that this should not be kept distinct from *C. semidecandrum*. The number of parts assuredly varies from 4—5, and in regard to all the other marks of distinction, it does appear to me that they rest on very slender grounds. The figure in *E. Bot.*, drawn from a cultivated specimen, only tends to mislead: in *E. Fl.* it is observed that the "taper-pointed calyx" is alone sufficient to separate it from *C. semidecandrum;* whereas I find no difference in the calyx whatever; except perhaps that in *C. semidecandrum* there is a more distinctly membranaceous margin, as there is also to the floral leaves or bracteas. In other respects I must confess that Mr. Borrer's own specimens of the two plants do seem to me to be truly the same. See, too, Dr. Greville's remarks in *Fl. Edinensis*, p. 103. Mr. Wilson, however, observes that this plant, though a difficult species, is, in his opinion, distinct.[1]

** *Petals longer than the calyx.*

5. C. *arvénse* L. (*Field Chickweed*); leaves linear-lanceolate more or less pubescent especially at the base, petals twice as long as the calyx. *E. Bot.* t. 93; *Ed. Cat.* p. 3.

Dry, sandy, and gravelly places. Less frequent in Scotland. *Fl.* June, July. ♃. — *Stems* branched and decumbent at the base, a span long, slender. *Flowers* large, pure white, 2 or 3 on terminal stalks. *Capsule* scarcely longer than the *calyx*.

[1] To this first division of the genus, variable as are most assuredly the species of it, Mr. Babington has added what he was led to consider two new British ones. 1. "*C. pedunculatum* (*Bab. in Mag. of Zool. and Bot.* v. ii. p. 200. t. vi.); leaves ovate or oblong, petals much shorter than the calyx, sepals lanceolate-acute covered with short glandular hairs their apex and margins membranous, the margins of the bracteas slightly membranous, capsule straight subcylindrical equal to or longer than the calyx, always erect, the fruit-bearing peduncles two or three times as long as the calyx, stems repeatedly dichotomous. *α. 5-partitum; β. 4-partitum.* Isle of Wight and Essex. Petit Port, Jersey: *Babington.* 2. *C. atrovirens* (*Bab.* l. c. p. 317. t. ix.); leaves broadly ovate, petals much shorter than the calyx, sepals lanceolate-acute covered with glandular hairs their apex and margins narrowly membranous, bracteas herbaceous, capsule obovate or subcylindrical shorter than the calyx, fruit-bearing peduncles two or three times as long as the calyx and erect. Berwick-upon-Tweed. Petit Port, Jersey; and near Itchin Ferry, Southampton: *Babington.*" Later observations, however, have induced Mr. Babington to consider his *C. pedunculatum* a var. of his *C. atrovirens.* His view is adopted by the *Edinburgh Catalogue.* — Mr. Borrer remarks that his Sussex *C. tetrandrum* is *C. atro-virens* Bab.

6. C. *alpínum* L. (*hairy alpine Chickweed*); subglabrous or clothed with long white soft silky hairs, leaves elliptical ovate, panicle dichotomous. *E. Bot.* t. 472; *Ed. Cat.* p. 3. C. latifolium, *Lightf. Scot.* vol. i. p. 242. t. 9.

Frequent on the Highland mountains of Scotland. Very rare in Wales, and not now to be found on Snowdon. *Fl.* July, Aug. ♃.— Much branched below and creeping, then erect, 3—5 inches high. *Flowers* large, handsome, white. *Petals* bifid at the point.

7. C. *latifólium* L. (*broad-leaved alpine Chickweed*); subglabrous or clothed with short rigid yellowish pubescence, leaves elliptical-ovate, branches mostly single-flowered. *E. Bot.* t. 473; *Ed. Cat.* p. 3.

Mountains of Wales and Scotland. Clogwyn y Garnedd, and Clogwyn du'r arrdhu, Snowdon, but rare. Very rare on Ben Lomond; more frequent on Ben Nevis. *Fl.* July, Aug. ♃.—Never clothed with long white hairs: of a deeper green than *C. alpinum*, sometimes almost glabrous. The *stems* are dichotomous and bare of *leaves* below, and much buried under rocks and stones. *Flowers* solitary, rarely 2, terminal on the branches. — I agree with Mr. W. Wilson in thinking that there exists scarcely any difference either in the flower and fruit between this and the preceding. In both, the *capsules* are broadly oblong, shining, nearly twice as long as the *calyx*, straight, opening with 10 *teeth*.

8. C. *aquáticum* L. (*Water Chickweed*); upper leaves cordato-ovate sessile, flowers solitary, fruit pendulous. *E. Bot.* t. 538. Stellaria, *Ed. Cat.* p. 13.

Sides of rivers and ditches. *Fl.* July. ♃.— *Stems* 1—2 feet long, branched and straggling. *Leaves* large, lower ones only on footstalks, with short scattered hairs on their surface and margins; whilst in *Stellaria nemorum* (to which it is closely allied), besides that the latter species has but 3 *styles*, the *leaves* are only ciliated on the margin, and appear, when seen under the microscope, to be very minutely dotted with raised points. *Stems* viscid upwards. The *capsule* opens with 5 teeth or valves.

14. Cherléria *Linn.* Cyphel.

Cal. of 5 sepals united at the base. *Pet.* 5, extremely minute, notched. *Stam.* 10, with glands at the base. *Styles* 3. *Caps.* 1-celled, opening with 3 valves, many-seeded. — Named in honour of *John Henry Cherler*, a friend and coadjutor of John Bauhin.

1. C. *sedoídes* L. (*mossy Cyphel*, or *Cherleria*). *E. Bot.* t. 1212; *Ed. Cat.* p. 4.

Summits of the Highland mountains, especially those of the Breadalbane range. *Fl.* June—Aug. ♃. *Roots* exceedingly long, running deep into the earth; bearing, upwards, innumerable short, forked *stems*, and forming a dense mass which scarcely rises above the surface of the soil. *Leaves* crowded, linear-subulate, channelled above, slightly ciliated and glandular at the edge. *Flowers* solitary, imbedded among the dense mass of leaves, yellow-green. *Cal.* membranous at the edge.

Ord. XV. LINEÆ.

Sepals 3—5, imbricated in æstivation, persistent. *Petals* 4—5, with a twisted æstivation. *Stamens* 3—5, united at the base into a hypogynous ring, with small teeth (abortive stamens) between them. *Ovary* with about as many cells as sepals, and as many *styles*. *Stigmas* capitate. *Capsule* globose, crowned with the permanent base of the styles; each cell partially divided into 2 by a spurious dissepiment, and opening with 2 valves at the apex. *Seeds* 1 in each cell, inverted. *Embryo* straight. — *Mostly* herbs, *with entire leaves and without stipules and very fugacious petals;* the stems contain the fibre which constitutes *flax*, while the seeds yield a valuable oil, and are used in medicine on account of their peculiarly mucilaginous qualities. — *Linum catharticum* is a purgative; *L. usitatissimum* is the *common Flax*.

1. Línum *Linn.* Flax.

Cal. of 5 sepals, persistent. *Pet.* 5. *Stam.* 5. *Caps.* globose, mucronate, with 10 valves and 10 cells. *Seeds* ovate, compressed.—Named from *Lin, thread*, in Celtic (*Théis*); the parent of many words in Latin, English, and French.

1. L. * *usitatíssimum* L. (*common Flax*); leaves alternate lanceolate, sepals ovate acute 3-nerved, petals crenate, stem subsolitary. *E. Bot.* t. 1357; *Ed. Cat.* p. 8.

Corn-fields, not unfrequent. *Fl.* July. ☉. — One or one foot and a half high, slender, branched above. *Leaves* distant. *Flowers* large, purplish-blue. — This, as may be inferred from its name, yields in the strong fibres of its bark the valuable *flax* of commerce; while from the seed a precious oil is expressed, known by the name of *Lint-seed oil*. These seeds, too, are highly mucilaginous, and much employed in poultices, fomentations, &c.

2. L. *perénne* L. (*perennial blue Flax*); leaves alternate linear acute, sepals obovate obtuse obscurely 5-ribbed glabrous, stems numerous from the same root. *E. Bot.* t. 40; *Ed. Cat.* p. 8.

Chalky hills: Cambridgeshire; Hinton, Northamptonshire; Westmoreland, Norfolk, and Suffolk. Near Monkstown, Ireland. *Fl.* June, July. ♃.

3. L. *angustifólium* Huds. (*narrow-leaved pale Flax*); leaves alternate linear-lanceolate acuminate 3-nerved, sepals elliptical three-ribbed mucronate. *E. Bot.* t. 381; *Ed. Cat.* p. 8.

Sandy and chalky pastures, principally near the sea. Kent, Sussex, Norfolk, Suffolk; near Liverpool. Cornwall; and near Plymouth. About Dublin. *Fl.* July. ♃. — All the three species of this division have a great similarity in their habit. The best characters, as observed by Sir J. E. Smith, are taken from the calyx. In the present the *petals* are of a paler blue than in the preceding species, and smaller in proportion to the size of the calyx.

4. L. *cathárticum* L. (*purging Flax*); leaves opposite oblong, stem dichotomous above, petals acute. *E. Bot.* t. 382; *Ed. Cat.* p. 8.

Pastures, everywhere abundant. *Fl.* June, July. ⊙. — *Stem* slender, upright, 2—6 inches high. *Flowers* gracefully drooping before expansion, white, small.

2. Radíola *Gmel.* Flax-seed.

Cal. of 4 sepals united up to their middle, and mostly 3-cleft. *Petals* 4. *Stam.* 4. *Caps.* of 8 cells and 8 valves. — Named from *radius*, a *ray*; I presume in consequence of the ray-like segments of the calyx.

1. R. *Millegrána* Sm. (*Thyme-leaved Flax-seed*). *E. Bot.* t. 890; *Ed. Cat.* p. 11. R. linoides *Gmel.* Linum Radiola *Linn.*

Moist gravelly and boggy soils, in many places. *Fl.* July, Aug. ⊙. — A very minute plant, 1—2 inches high, repeatedly dichotomous. *Leaves* distant, ovate, entire, glabrous, under a high power of the microscope appearing dotted. *Flowers* axillary and terminal, solitary, on short peduncles. *Cal.* segments united so as to form a monophyllous many-toothed calyx.

Ord. XVI. MALVACEÆ.

Calyx 5-cleft, involucrated. *Corolla* of 5 *petals*, regular. *Stamens* indefinite, monadelphous, often united with the petals at their bases. *Anthers* reniform, 1-celled. *Ovary* 1. *Styles* single or several combined. *Stigmas* several. *Fruit* of many cells and many valves, or of many capsules, which are dehiscent or indehiscent, collected into a compact body, or placed in a whorl round the base of the *style*. *Seed* solitary, ascending. *Albumen* mucilaginous, not abundant. *Embryo* curved. *Cotyledons* foliaceous, plaited. — Herbs, *or* shrubs, *or* trees. Leaves *alternate, with stipules*. Flowers *axillary*. — They abound in mucilage, especially the seeds. The stems and roots afford an excellent fibre. — *Gossypium* yields the *Cotton*.

1. Lavatéra *Linn.* Tree-Mallow.

Styles numerous. *Cal.* double; *ext.* (or *involucre*) 3-lobed. *Capsules* numerous, circularly arranged, 1-seeded. — Named in honour of the two *Lavaters*, friends of Tournefort.

1. L. *arbórea* L. (*Sea Tree-Mallow*); stem arborescent, leaves with about 7 angles downy plaited, peduncles axillary clustered single-flowered. *E. Bot.* t. 1814; *Ed. Cat.* p. 7.

On maritime, always insulated rocks, in the south and west of England. Islet off the coast of Anglesea. Isles in the Firth of Forth. Ireland. *Fl.* July, Aug. ♂.—3—5 feet high. *Flowers* large, purple rose-coloured, shining, darker at the base of the petals.

2. MÁLVA *Linn.* Mallow.

Styles numerous. *Cal.* double; *ext.* (or *involucre*) of 3 leaves. *Capsules* numerous, circularly arranged, 1-seeded. — Name altered from μαλαχη, soft; in allusion to the emollient nature of the species.

1. M. *sylvéstris* L. (*common Mallow*); stem erect herbaceous, leaves with 7 rather acute lobes, peduncles and petioles hairy. *E. Bot.* t. 671; *Ed. Cat.* p. 8.

Waste places and way-sides; not common in Scotland. King's Park, Edinb. Cross-basket, near Glasgow. Kirkbean, Galloway. Frequent in Ireland. *Fl.* June—Aug. ♃. — *Stem* 2—3 feet or more high, branched. *Flowers* large, 3 or 4 together, axillary. *Petals* large, obcordate, of a purplish rose-colour with deeper veins, combined by the bases of their claws. Whole *plant*, especially the *fruit*, mucilaginous and emollient.

2. M. *rotundifólia* L. (*dwarf Mallow*); stem prostrate, leaves roundish-cordate 5-lobed, fruit-stalks bent down. *E. Bot.* t. 1092; *Ed. Cat.* p. 8.—β. petals as short as the calyx. *E. Fl.* v. iii. p. 247. M. pusilla, *E. Bot.* t. 242. M. borealis *Liljebl.*: *Ed. Cat.* p. 8.

Waste places and way-sides, frequent. *Fl.* June—Sept. ♃. — *Stems* 10—12 inches long, branching only from the root. *Flowers* small, roundish.

3. M. *moscháta* L. (*Musk Mallow*); stem erect, radical leaves reniform in 5 or 7 broad cut lobes, cauline ones 5-partite pinnato-multifid their segments linear, calyx hairy leaflets of the ext. calyx linear. *E. Bot.* t. 754; *Ed. Cat.* p. 8.

Meadows, pastures, and road-sides, especially in a gravelly soil; not unfrequent. *Fl.* July, Aug. ♃. — 2—3 feet high. *Flowers* large, beautiful, rose-coloured, 1—2 from the axils of the terminal leaves. The foliage yields a faint musky smell if drawn through the hand. A *var.* is found by Mr. Borrer at Wokey, Somersetshire, with leaves all reniform and shallow lobes.

3. ALTHÉA *Linn.* Marsh-mallow.

Styles numerous. *Cal.* double; *ext.* (or *involucre*) of 6—9 leaves. *Capsules* numerous, circularly arranged, 1-seeded. — Name: αλθω, to *cure;* from its healing properties.

1. A. *officinális* L. (*common Marsh-mallow*); leaves soft and downy on both sides cordate or ovate toothed, entire or 3-lobed, peduncles axillary many-flowered much shorter than the leaves. *E. Bot.* t. 147; *Ed. Cat.* p. 1.

Marshes, mostly near the sea; rare in Scotland. Solway Firth, and near Campsie. *Fl.* Aug. Sept. ♃. — 2—3 feet high, remarkable for the dense, exquisitely soft, and starry pubescence of the *leaves* and *stems*. *Flowers* 3—4 together, on axillary *stalks*, large, pale rose-colour. — Affords an abundant mucilage, and a decoction of it is in very general use for the cure of cough. In France it is made into lozenges, called *Pâtes de Guimauve*.

2. A. **hirsúta* L. (*hispid Marsh-mallow*); leaves cordate rough with hairs, lower ones obtusely upper acutely lobed crenate, stem hispid, peduncles single-flowered longer than the leaves. *Cav. Diss.* v. ii. t. 29. f. 1; *Hook. in E. Bot. Suppl.* t. 2674; *Ed. Cat.* p. 1.

Fields and waste places, rare. In a field near Cobham: *Mr. J. Rayer.* At the same station, that is, between Cobham and Cuxton, the *Rev. Prof. Henslow* finds it abundantly. *Fl.* June, July. ☉. — Remarkable for its very hispid *stems* and *calyces*.

Ord. XVII. TILIACEÆ.

Sepals 4—5, with valvular æstivation. *Petals* 4—5, often with a depression at the base, sometimes wanting. *Stamens* generally indefinite. *Anthers* 2-celled, opening longitudinally. *Glands* 4—5, adnate with the petals from the stalk of the ovary. *Ovary* 1—10-celled. *Style* 1. *Capsule* with one or many *seeds* in each cell. *Albumen* fleshy, including an erect *Embryo*. — Trees *or* shrubs, *with stipuled alternate* leaves, *and a mucilaginous wholesome juice, the inner bark exceedingly tenacious.* — Russian or bast-matting is the bark of the *Lime*.

1. Tília *Linn.* Lime.

Cal. 5-partite, deciduous. *Pet.* 5, with or without a *nectary* at the base. *Fruit* coriaceous, 5-celled, without valves; cells 1—5, 2-seeded. Name of obscure origin.

1. T. **Europæa* L. (*common Lime,* or *Linden-tree*); nectaries none, leaves twice the length of the footstalks quite glabrous, except a woolly tuft at the origin of each vein beneath, cymes many-flowered, fruit coriaceous downy. *E. Bot.* t. 610; *Ed. Cat.* p. 14. T. intermedia *DC.*

Woods and hedgerows, probably not indigenous. *Fl.* July. ♄. — A large and handsome *tree*; its *flowers*, "at dewy eve distilling odours," yellowish-green, on a stalked *cyme*, springing from a large lanceolate foliaceous *bractea*, which falls off with the fructified *cymes*. *Fruit* generally 1-celled and 1-seeded. — Linnæus is said to have derived his own name from the Swedish *Lin*, our Linden or Lime-tree.

2. T. **grandifólia* Ehrh. (*broad-leaved downy Lime-tree*); nectaries none, leaves downy especially beneath, origin of the veins woolly, branches hairy, umbels 3-flowered, fruit woody downy turbinate with prominent angles. *Forst. in E. Bot. Suppl.* t. 2720; *Ed. Cat.* p. 14.

Woods and hedges, in several places; scarcely wild. Blair in Athol, Scotland. Near Edinburgh. *Fl.* June, July. ♄.

3. T. *parvifólia* Ehrh. (*small-leaved Lime-tree*); nectaries none, leaves smooth above, glaucous beneath with scattered as

well as axillary hairy blotches, umbels compound many-flowered, fruit roundish brittle nearly glabrous. *Sm.: E. Bot.* t. 1705; *Ed. Cat.* p. 14. T. microphylla *Vent.*

Woods in Essex, Lincolnshire, &c. Sussex, Wales; safely to be reckoned indigenous: *Borrer.* *Fl.* Aug. ♄.

Ord. XVIII. HYPERICINEÆ.

Sepals 4—5, more or less cohering, unequal, frequently with glandular dots. *Petals* 4—5, with a twisted æstivation and often black dots. *Stamens* numerous (5 in *Parnassia*), in 3 or more parcels, rarely monadelphous or free. *Anthers* small, versatile. *Ovary* single. *Styles* several, rarely combined. *Stigmas* simple. *Fruit* a *capsule* or *berry*, of several valves and cells, the valves curved inwards. *Seeds* minute, numerous, on a receptacle in the axis, or on the incurved margins of the valves. *Embryo* straight. *Albumen* 0. — Herbs *or* shrubs, *with generally opposite* leaves, *mostly marked with pellucid dots, and commonly yellow* flowers. Aromatic and resinous, juice sometimes purgative.

1. Hypéricum *Linn.* St. John's Wort.

Cal. 5-partite, or of 5 sepals, inferior. *Pet.* 5. *Filaments* united at the base into 3 or 5 sets. *Capsule* many-seeded. — Name: the ὑπερικον of Dioscorides.

* *Styles* 5.

1. H. **calycínum* L. (*large-flowered St. John's Wort*); styles 5, flowers solitary, segments of the calyx unequal obovate obtuse, leaves oblong, stem shrubby branched square. *E. Bot.* t. 2017; *Ed. Cat.* p. 7.

Bushy places. Largs, and Balmacarra, Scotland; but I fear not truly wild, as it is commonly cultivated in shrubberies on account of its beauty. Near Cork, Ireland. *Fl.* July—Sept. ♄. — *Flowers* very large, yellow, as in all the genus. Sets of *stamens* 5.

** *Styles* 3. *Sepals entire at the margins.*

2. H. *Androsæmum* L. (*Tutsan*); styles 3, capsule pulpy, stem shrubby compressed, sepals unequal, leaves ovate sessile. *E. Bot.* t. 1225; *Ed. Cat.* p. 7. Androsæmum officinale *All.*

Hedges and shrubby places; Norfolk; Herts. Between Dorking and Guildford, and at Gt. Marlow, Bucks. Not rare in Devon and Cornwall. Frequent in Ireland, and on the W. of Scotland. *Fl.* July. ♄. — 2 feet high. *Leaves* large. *Cymes* terminal, of rather large *flowers*. *Berry* black.

3. H. *quadrángulum* L. (*square-stalked St. John's Wort*); styles 3, stem herbaceous 4-angled somewhat branched, leaves ovate with pellucid dots, sepals lanceolate. *E. Bot.* t. 370; *Ed. Cat.* p. 7. H. tetrapterum *Fries: Leight.*

Moist pastures, sides of ditches and rivulets. *Fl.* July. ♃. — 1—2 feet high. *Panicles* terminal. The *A. quadrangulum* of Leight. Shrop. Fl., Mr. Babington (*Trans. Bot. Soc. Ed.*, vol. i. p. 88.) considers a distinct and a new British species, "*H. maculatum* (Crantz); caule erecto quadrangulo, foliis ovato-ellipticis obtusis pauci-pellucido-punctatis, sepalis reflexis ovato-lanceolatis denticulatis obtusis mucronatis pellucido-striatis, petalis ellipticis obtusis subtus striis punctisque purpureis." To this Mr. Babington refers *H. Delphinense* Vill.— I may observe that Steudel, in his recent "Nomenclator," refers the *H. maculatum*, Crantz, to *H. quadrangulum* of Linn.; or if, as is supposed, the Germans confound the *H. quadrangulum* L. with the *dubium* Leers, then to the latter species.

4. H. *perforátum* L. (*common perforated St. John's Wort*); styles 3, stem 2-edged, leaves elliptic-oblong obtuse with pellucid dots, segments of the calyx lanceolate. *E. Bot.* t. 295; *Ed. Cat.* p. 7.

Woods, thickets, hedges, &c., abundant. *Fl.* July. ♃. — 1—2 feet or more high, branched. There are minute black dots on the tips of the *cal.*, *cor.*, and often on the *leaves*. This plant is variously commemorated by physicians and poets, as "Balm of the Warrior's wound," in allusion to its healing properties; while its profusion of flowers is thus noticed: —

> "*Hypericum*, all bloom, so thick a swarm
> Of flowers, like flies, clothing its slender rods,
> That scarce a leaf appears."

5. H. *dúbium* Leers (*imperforate St. John's Wort*); styles 3, stem obsoletely quadrangular, leaves elliptic-ovate obtuse destitute of pellucid dots, segments of the calyx elliptical. *E. Bot.* t. 296; *Ed. Cat.* p. 7.

Rather mountainous woods in various places, but nowhere in great plenty. *Fl.* July, Aug. ♃. — Similar in many respects to the last; for which, perhaps, it is not unfrequently mistaken. *Corolla* often marked with small black dots.

6. H. *humifúsum* L. (*trailing St. John's Wort*); styles 3, flowers terminal subcymose, stem compressed prostrate, leaves oblong obtuse glabrous. *E. Bot.* t. 1226; *Ed. Cat.* p. 7.

Gravelly, heathy, and boggy pastures, stone walls, &c., in many places. *Fl.* July. ♃. — *Stem* slender, about a span long. *Cor.* with black dots, as well as the *calyx*, on which they are frequently seen near the edge, but not, in my specimens, so distinctly as to justify the plant being placed in the next division.

*** *Styles* 3. *Margins of the sepals with glandular serratures.*

7. H. *montánum* L. (*Mountain St. John's Wort*); styles 3, flowers paniculato-corymbose, calyx with glandular serratures, stem erect rounded and as well as the ovate leaves glabrous. *E. Bot.* t. 371; *Ed. Cat.* p. 7.

Bushy hills, especially in a chalky or gravelly soil. *Fl.* July. ♃. — 1½—2 ft. high. *Leaves* rather large, more or less perforated, distant, especially above; their margins having black glandular serratures, with which the *bracteas* and *calyx* are beautifully fringed.

8. H. **barbátum* Jacq. (*bearded St. John's Wort*); styles 3, corymbs terminal, calyx fringed with long stalked glands, stem erect rounded, leaves ovate with (black) scattered dots beneath. *E. Bot.* t. 1986; *Ed. Cat.* p. 7.

Side of a hedge near Aberdalgy in Strathearn, Perthshire. *Fl.* Sept., Oct. ♃. — 1 ft. or more high. Very distinct in the long glandular hairs of its *calyx*. The *petals*, too, are often toothed at the extremity.

9. H. *linarifólium* Vahl (*linear-leaved St. John's Wort*); "styles 3, flowers terminal cymose, sepals lanceolate acute their margins with numerous black spots and glandular serratures, leaves linear obtuse the margins revolute, stem terete." *Bab. Prim. Fl. Sarn.* p. 20; *Ed. Cat.* p. 7; *E. Bot. Suppl.* t. 2851.

Cape Cornwall: also on dry slopes of hills in several parts of Jersey, particularly on a hill between Ann Port and St. Catharine's bay: *Babington*. Banks of the Teign, Devon: *Rev. T. Hincks*. *Fl.* July, Aug. ♃. — *Flowers* rather large, yellow. *Stem* procumbent below. *H. humifusum* differs from this by its prostrate slightly two-edged stems; oblong, obtuse, and mucronate sepals; oval-oblong leaves; smaller flowers; fewer, about 15 (not 30 or more), stamens; broader capsules and shorter styles: *Bab.*

10. H. *hirsútum* L. (*hairy St. John's Wort*); styles 3, calyx with (black) glandular serratures, stem erect rounded pubescent, leaves ovate slightly downy beneath. *E. Bot.* t. 116; *Ed. Cat.* p. 7.

Woods and thickets, especially in a chalky soil. *Fl.* July. ♃. — 2 ft. high. *Leaves* rather large, more or less downy, especially beneath.

11. H. *púlchrum* L. (*small upright St. John's Wort*); styles 3, calyx with (black) glandular serratures, stem erect, leaves cordate amplexicaul glabrous. *E. Bot.* t. 1227; *Ed. Cat.* p. 7.

Dry woods and heaths, frequent. *Fl.* July. ♃. — 1—2 ft. high, slender, erect, rigid, branched. *Flowers* beautiful, in loose *panicles*, yellow, tipped, before expansion, with red. *Anthers* red.

12. H. *elódes* L. (*Marsh St. John's Wort*); styles 3, calyx with (reddish) glandular serratures glabrous, leaves roundish shaggy, stem rounded creeping, panicle of few flowers. *E. Bot.* t. 109; *Ed. Cat.* p. 7.

Spongy bogs, not unfrequent. *Fl.* July, Aug. ♃. — A span long. *Flowers* few, panicled, terminal, pale yellow.

2. Parnássia *Linn.* Grass of Parnassus.

Cal. deeply 5-cleft. *Petals* 5. *Nectaries* 5, heart-shaped, fringed with globular-headed filaments. *Capsule* 1-celled, 4-valved, each valve bearing a longitudinal linear receptacle with numerous *seeds*. — Named from *Mount Parnassus;* to which place, indeed, the plant is by no means peculiar.

1. P. *palústris* L. (*common Grass of Parnassus*); bristles of the nectary 9—13, leaves cordate cauline one amplexicaul. *E. Bot.* t. 82; *Ed. Cat.* p. 9.

Bogs and wet places ; frequent in the North. *Fl.* Aug.—Oct. ♃. — *Leaves* mostly radical, on long footstalks, cordate, entire, nerved ; one, on the stem below the middle, sessile. *Stem* angular, from 1 inch (as I have seen it in N. Ronaldsha, Orkney, with perfect flowers) to 8—10 inches high. *Flower* solitary, terminal, large, yellowish-white, handsome. *Petals* broadly obovate. *Nectaries*, each an obcordate scale, opposite the petals, fringed along the margin with white hairs which are terminated by a yellow pellucid globular gland.

Ord. XIX. ACERINEÆ.

Calyx 4—5—9-partite. *Petals* of the same number, inserted beneath an hypogynous disk. *Stamens* about 8, inserted on the disk. *Ovary* 2-lobed. *Style* 1. *Stigmas* 2. *Fruit* a double *Samara*, each 1-celled, with 1 or 2 erect *seeds*. *Albumen* 0. *Embryo* curved, with foliaceous wrinkled *cotyledons*. — Trees *of the temperate parts of the northern hemisphere*. Leaves *generally simple and lobed ;* flowers *often polygamous*. — *Acer saccharinum* of N. America yields *Maple Sugar*.

1. A'cer *Linn.* Maple.

Cal. 5-cleft. *Pet.* 5. *Germen* 2-lobed. *Capsules* 2, united at the base, each with a long winged membrane (hence called a *Samara*), 1-celled, 1—2-seeded. — Named from *acer*, *sharp* or *hard* (*ac*, Celtic), on account of the hardness of the wood, which was employed in fabricating spears, spikes, &c.

1. A.* *Pseúdo-plátanus* L. (*greater Maple*, or *Sycamore*) ; leaves 5-lobed unequally serrated, racemes pendulous. *E. Bot.* t. 303 ; *E. Fl.* v. ii. p. 230 ; *Ed. Cat.* p. 1.

In hedges, plantations, and about houses. *Fl.* May. June. ♄. — A large *tree*, with spreading *branches* and ample *leaves*. *Flowers* greenish. *Fruit* with two long membranaceous wings, which greatly aid in its dispersion. The *wood* is used for bowls and trenchers and other turnery. From an allied species, *A. saccharinum*, the Canadians extract a valuable sugar.

2. A. *campéstre* L. (*common Maple*) ; lobes of the leaves mostly 5 inciso-crenate, racemes upright subtomentose. *E. Bot.* t. 304 ; *Ed. Cat.* p. 1.

Woods and thickets, not common in Scotland, and perhaps neither indigenous there nor in Ireland. *Fl.* May, June. ♄. — A small *tree*, with rough *bark*, full of deep fissures. *Leaves* small. *Wood* often beautifully veined, and then much prized.

Ord. XX. GERANIACEÆ.

Sepals 5, persistent, with an imbricated æstivation. *Petals* 5. *Stamens* generally monadelphous and twice as many as there are petals, some occasionally abortive. *Ovary* 5-lobed, terminated by a long thick beak (*torus* or *gynobase*), and 5 *stigmas*. *Carpels* 5, 1-celled, eventually separating from the base of the beak,

together with a long elastic awn (the *style*). *Seed* solitary, without *albumen*. *Embryo* curved. *Cotyledons* foliaceous, convolute and plaited. — Herbs *or* Shrubs, *with leaves opposite at the joints, or alternate and then opposite the peduncles. No tendrils.*

1. Geránium *Linn.* Crane's-bill.

Style 1. *Cal.* of 5 sepals. *Cor.* of 5 regular petals. *Stam.* 10, slightly monadelphous at the base. *Glands* 5. *Fruit* beaked, separating into 5 1-seeded *capsules*, each with a long naked awn. — Name: γερανιον of the Greeks, from γερανος, a *crane;* the fruit resembling the beak of a crane.

* *Peduncles* 1-*flowered.*

1. G. *sanguíneum* L. (*bloody Crane's-bill*); peduncles 1-flowered, leaves nearly orbicular in 5—7 deep lobes each of which is trifid. *E. Bot.* t. 272; *Ed. Cat.* p. 6.

Alpine or limestone pastures, in many places; but not very general. *Fl.* July. ♃. — 1—1½ ft. high, swelling at the joints. *Peduncles* axillary, long. *Flowers* large, handsome, purple, varying to flesh-colour, with purple veins.

** *Peduncles* 2-*flowered.*

2. G. *phæum* L. (*dusky Crane's-bill*); peduncles 2-flowered opposite the leaves, calyx slightly awned, petals waved, capsules keeled hairy below wrinkled above, stem erect. *E. Bot.* t. 322; *Ed. Cat.* p. 6.

Woods and thickets, in many places; but often the outcast of a garden. *Sir J. E. Smith* considers it to be perhaps most truly wild in the mountainous parts of Yorkshire and Lancashire. With white fl. at the sands of Barrie near Dundee. *Fl.* May, June. ♃. — *Stem* 2 ft. or more high, dichotomously branched. *Leaves* 3—7-lobed, lobes acute, cut and serrated. *Flowers* very dingy, purple-black.

3. G.* *nodósum* L. (*knotty Crane's-bill*); peduncles 2-flowered, leaves opposite 5- or 3-lobed pointed serrated, capsules even downy all over. *Sm.: E. Bot.* t. 1091; *Ed. Cat.* p. 6.

Said to have been found in the mountainous parts of Cumberland, and between Hatfield and Welwyn, Herts; but I have never seen British specimens. *Fl.* May—Aug. ♃.

4. G. *sylváticum* L. (*Wood Crane's-bill*); peduncles 2-flowered, leaves subpeltate with 5 or 7 deep and acute lobes which are cut and serrated, stem erect corymbose, petals slightly notched, stamens fringed, capsules keeled hairy not wrinkled. *E. Bot.* t. 121; *Ed. Cat.* p. 6.

Woods, thickets, and sides of rivers, chiefly in subalpine countries. *Fl.* June, July. ♃. — 1—3 feet high. *Flowers* purple, rather larger than those of *G. phæum*, but much smaller than in the following species.

5. G. *praténse* L. (*blue Meadow Crane's-bill*); peduncles 2-flowered, leaves 5-partite, lobes multipartite all the segments acute, stamens glabrous dilated at the base, capsules hairy not wrinkled. *E. Bot.* t. 404; *Ed. Cat.* p. 6.

Pastures and moist thickets, particularly near cascades in mountainous countries; and about London. *Fl.* June, July. ♃. — 1—2 feet high. Distinguished by its large purple *flowers* and multipartite *leaves*.

6. G. *Pyrenáicum* L. (*Mountain Crane's-bill*); peduncles 2-flowered, leaves reniform 5—7-lobed, lobes oblong obtuse trifid and toothed at the extremity, stem erect branched, petals with a deep notch twice as long as the calyx. *E. Bot.* t. 405; *Ed. Cat.* p. 6.

Meadows and pastures in many places, but not frequent. *Fl.* June, July. ♃. — 2—3 feet high, much branched. Distinguished by the very obtuse segments of its lower *leaves* (for the upper ones are acute and less divided), and its rather small, numerous, purple *flowers*, with cleft *petals*.

7. G. *lúcidum* L. (*shining Crane's-bill*); peduncles 2-flowered, leaves roundish 5-lobed, lobes trifid and notched obtuse with a short mucro, calyx pyramidal angular dentato-tuberculate, capsules wrinkled. *E. Bot.* t. 75; *Ed. Cat.* p. 6.

Rocks, walls, and roofs of houses, especially in mountainous countries. Frequent in Surrey and Bucks. *Fl.* June, July. ☉. — *Stems* spreading shining (as are the *leaves*), brittle, swelling at the joints. *Leaves* small, lower ones often of a fine red. *Flowers* small, rose-coloured.

8. G. *Robertiánum* L. (*stinking Crane's-bill*, or *Herb Robert*); peduncles 2-flowered, leaves ternate or quinate, leaflets pinnatifid, segments mucronate, calyx angular hairy, capsules wrinkled. *E. Bot.* t. 1486; *Ed. Cat.* p. 6.

Woods, thickets, stony and waste ground, frequent. A small *var.* is common by the sea-side, the β. of *Smith*, and which is the *G. purpureum* of Mill. and of Forster in E. Bot. Suppl. t. 2648; *G. Raïi*, Lindl. Syn. p. 57. *Fl.* summer months. ☉. — *Stems* spreading, red, brittle. *Flowers* purple, sometimes white.

9. G. *mólle* L. (*Dove's-foot Crane's-bill*); peduncles 2-flowered, leaves rounded or reniform lobed and cut downy, petals notched scarcely longer than the calyx, capsules transversely wrinkled, seeds without dots. *E. Bot.* t. 778; *Ed. Cat.* p. 6.

Dry pastures and waste places, common. *Fl.* Apr. — Aug. ☉. — *Stems* spreading, procumbent, with long hairs. *Leaves* lobed; *lobes* broad, cut. *Flowers* small, purple. *Seeds* smooth.

10. G. *rotundifólium* L. (*round-leaved Crane's-bill*); peduncles 2-flowered, leaves roundish or reniform lobed and cut downy, petals entire the length of the calyx, capsules smooth, hairy, seeds dotted. *E. Bot.* t. 157; *Ed. Cat.* p. 6.

Pastures and waste ground in England, but not common. About Edinb. *Fl.* June, July. ⊙. — Distinguished from the preceding by the entire *petals*, and, according to Sir Jas. E. Smith, by its smooth or even *capsules* and dotted *seeds*.

11. G. *pusíllum* L. (*small-flowered Crane's-bill*); peduncles 2-flowered, flowers pentandrous, petals notched, leaves rounded or reniform in 5—7 deep lobes, lobes trifid, capsules smooth carinated downy with erect appressed hairs, seeds smooth. *E. Bot.* t. 385; *Ed. Cat.* p. 6.

Waste ground and in gravelly soils, frequent; less common in Scotland. About Edinb. and Glasgow. *Fl.* June—Sept. ⊙. — *Stem* weak, prostrate. *Leaves* deeply lobed. *Flowers* very small, bluish-purple.

12. G. *disséctum* L. (*jagged-leaved Crane's-bill*); peduncles 2-flowered, petals notched rather shorter than the much-awned calyx, leaves 5-partite, lobes linear trifid or cut, capsules smooth hairy, seeds dotted. *E. Bot.* t. 753; *Ed. Cat.* p. 6.

Hedges and pastures, gravelly and waste places. *Fl.* May, June. ⊙. — *Stems* spreading. Distinguished by the much-divided *leaves* and the short *footstalks* of the blossoms, which, as Curtis observes, thus appear as if sitting among the leaves.

13. G. *columbínum* L. (*long-stalked Crane's-bill*); peduncles 2-flowered longer than the leaves which are 5-partite, the lobes divided into many acute segments, petals entire as long as the much-awned calyx, capsules smooth glabrous, seeds dotted. *E. Bot.* t. 259; *Ed. Cat.* p. 6.

Dry pastures in several parts of Great Britain; especially in a gravelly or limestone soil. *Fl.* June, July. ⊙. — *Stem* very slender, procumbent, its hairs, as in *G. dissectum*, reflexed. *Capsules* quite glabrous.

2. Eródium *L'Hérit.* Stork's-bill.

Style 1. *Cal.* of 5 sepals. *Cor.* of 5 petals. *Stam.* 10, slightly monadelphous at the base, alternately sterile. *Glands* 5. *Fruit* beaked, separating into 5 1-seeded *capsules*, each with a long spiral *awn*, bearded on the inside. — Name: ερωδιος, a *heron*; the fruit resembling the beak of that bird.

1. E. *cicutárium* Sm. (*Hemlock Stork's-bill*); peduncles many-flowered, leaves pinnate, leaflets sessile pinnatifid and cut, petals longer than the calyx, stems prostrate hairy. *E. Bot.* t. 1768; *Ed. Cat.* p. 5. Geranium *L.*

Waste ground, frequent. *Fl.* summer months. ⊙. — Whole plant hairy. *Flowers* in small *umbels*, purplish, or sometimes white.

2. E. *moschátum* Sm. (*musky Stork's-bill*); peduncles many-flowered, leaves pinnate, leaflets nearly sessile ovate unequally cut, perfect stamens toothed at the base, stems depressed hairy. *E. Bot.* t. 902; *Ed. Cat.* p. 5. Geranium *L.*

Mountainous pastures, rare. Frequent in Guernsey and Jersey: *Babington and Christy.* In the Craven of Yorkshire, and in Westmoreland. Near Bristol; Shotover Hill, Oxford, and on Ampthill warren, Bedfordshire. Near Plymouth. Simmond's Court, Carlingford Castle, and Monkstown Church; Ireland. Bank near Countess Wear Bridge, on the Exe, Devon. Near Gresford: *J. E. Bowman. Fl.* June, July. ⊙. — Larger than the last, and with much less deeply cut *leaflets*, which yield a powerful smell of musk.

3. E. *marítimum* Sm. (*Sea Stork's-bill*); peduncles 1- or few-flowered, leaves simple ovato-cordate stalked lobed and crenate, stems depressed slightly hairy. *E. Bot.* t. 646; *Ed. Cat.* p. 5. Geranium *L.*

Sandy and gravelly sea-coasts, but rare; as in Sussex[1], Wales, and Cornwall. Steep-Holmes, and near Bristol, far from the sea. Glenluce, Galloway: *Dr. Graham.* Hill of Howth, Ireland. *Fl.* May—Sept. ♃. — *Flowers* exceedingly small and inconspicuous. *Petals* fugacious.

Ord. XXI. BALSAMINEÆ.

A singular Order, whose flowers have been very differently understood by different botanists. Roeper's idea is as follows: — *Sepals* 5, or 3 by imperfection, free. *Petals* 5, unequal, 4 inferior more or less united, the upper one free, symmetrical. *Stamens* 5; *filaments* united at the extremity. *Anthers* 2-celled, opening at the apex by a longitudinal fissure. *Stigmas* 5, sessile, acute. *Capsule* of 5 cells, marked with 5 furrows, and bursting with 5 elastic valves. *Seeds* solitary or numerous, suspended. — Herbaceous *and succulent* plants, *without stipules.* Fruit *with elastic valves.*

1. Impátiens *Linn.* Balsam.

Cal. of 2 deciduous leaves. *Pet.* 5, very irregular, lower one cucullate with a spur. *Anthers* united. *Capsule* of 5 elastic valves. — Name (*impatient*) from the sudden opening of the valves of the capsule, when the fruit is touched.

1. I. **Noli-me-tángere* L. (*yellow Balsam*, or *Touch-me-not*); joints of the stem swelling, leaves ovate serrated petiolate, peduncles solitary many-flowered. *E. Bot.* t. 937; *Ed. Cat.* p. 7.

Moist shady woods in Yorkshire and Westmoreland; Lancashire (Bury); in a wooded glen, 12 miles from Broughton, where it grows in large bushes, 5 feet high, and where it has been known upwards of 100 years: *Dr. J. B. Wood.* Abundant in a wet glen at Castlemilk, near Glasgow. *Fl.* July, Aug. ⊙. — *Stem* generally 1 foot high, rounded, succulent, fragile. *Flowers* large, yellow, spotted with orange. *Capsule* bursting elastically and scattering its *seeds* with considerable force: the valves are then spirally twisted.

[*I. fulva* of N. America (*Borr. in E. Bot. Suppl.* t. 2794) grows on the banks of the Wey, near Guildford.]

[1] The sandy shore on which it grew in Sussex has been long washed away: *Borrer.*

Ord. XXII. OXALIDEÆ.

Sepals 5, persistent. *Petals* 5, equal, often cohering at the base and twisted in æstivation. *Stamens* 10, the *filaments* generally combined at their base, unequal. *Anthers* 2-celled. *Ovary* 1, 5-celled. *Styles* 5. *Stigmas* capitate or somewhat bifid. *Capsules* with 5 or 10 valves. *Seeds* attached to the axis in a curious elastic *arillus* (or outer integument), which, on bursting open, projects the seed to a distance. *Embryo* in a cartilaginous *albumen*, with its *radicle* towards the *hilum*. — *Mostly* Herbs, *with compound acid leaves; some of them highly sensitive.* — *Oxalis Acetosella* abounds in oxalic acid. *O. crenata* of Peru affords a salad in its leaves, and its tubers are eaten as potatoes, but they are not worthy a place in an European kitchen-garden.

1. O'xalis *Linn.* Wood-Sorrel.

Cal. 5-partite. *Pet.* 5, often united by the bases of their claws. *Filaments* slightly combined below, 5 outer ones shorter. *Caps.* angular, 5-celled: *cells* 2- or many-seeded. *Seeds* with an elastic *arillus*. — Named from *ὀξυς, sharp* or *acid.*

1. O. *Acetosélla* L. (*common Wood-Sorrel*); leaves all radical ternate, leaflets inversely heart-shaped hairy, scape single-flowered, root scaly. *E. Bot.* t. 762; *Ed. Cat.* p. 9.

Woods and shady places, frequent; also at a great elevation on the mountains, among shady rocks. *Fl.* May, and on the Alps, till August. ♃. — *Leaf-stalks* long and slender, reddish. *Leaflets* drooping at night. *Scape* with two scaly *bracteas*. *Flowers* handsome, drooping, white, with purplish veins. The *leaves* have a most agreeably acid flavour.

2. O. *corniculáta* L. (*yellow procumbent Wood-Sorrel*); stem branched, branches procumbent, peduncles mostly 2-flowered shorter than the leaves, stipules united to the base of the foot-stalks. *E. Bot.* t. 1726; *Ed. Cat.* p. 9.

Shady waste ground, chiefly in the extreme south of England; Sussex and Devonshire. *Fl.* through the summer. ☉. — This is, indeed, very nearly allied to *O. stricta;* but that species has a more upright, less branched *stem;* more numerous and often whorled *leaves;* with longer *flower-stalks* and several *flowers* in an *umbel;* and no evident *stipules* at the base of the *petioles*. *O. stricta* is stated by *Mr. Babington*, in a paper read before the British Association, 1839, to be an inhabitant of *gardens* near Penzance.

Sub-Class II. CALYCIFLORÆ. (ORD. XXIII.—XLVIII.)

Corolla and stamens perigynous or inserted upon the calyx.[1] *Ovary either free or adnate with the tube of the calyx.*

A. POLYPETALOUS.

ORD. XXIII. CELASTRINEÆ.

Sepals 4—5, united by a fleshy disk, imbricated in æstivation. *Petals* 4—5, alternate with the sepals arising from the disk. *Stamens* 4—5, alternate with the petals. *Ovary* more or less united with the disk, 3—4-celled. *Fruit* a *capsule* with 3—4 cells, and 3—4 septiferous valves, or a dry *drupe* with 1 or 2 cells which are 1- or many-seeded. *Seeds* erect, often arillate. *Albumen* fleshy, with a straight *embryo*. *Radicle* inferior. — Shrubs, *with simple, mostly opposite leaves, and axillary cymes.*

1. STAPHYLÉA *Linn.* Bladder-Nut.

Cal. 5-partite, coloured, with an urceolate disk at the base. *Pet.* 5. *Stam.* 5. *Styles* 2—3. *Capsule* membranaceous, of 2—3 cells. — Named from σταφυλη, a *bunch of grapes*, its flowers being in racemes.

1. S. * *pinnáta* L. (*common Bladder-Nut*); leaves pinnated, petioles without glands, styles 2, capsules bladdered. *E. Bot.* t. 831; *Ed. Cat.* p. 13.

Thickets and hedges in Yorkshire: *Mr. Hailstone*. About Ashford, Kent. It is frequent in gardens. *Fl.* June. ♄.

2. EUÓNYMUS *Linn.* Spindle Tree.

Cal. flat, 4—5-cleft, having a peltate disk within. *Pet.* 4—5. *Stam.* alternating with the petals, inserted upon an annular disk. *Caps.* with 3—5 angles, and as many cells and valves. *Seeds* with a coloured fleshy *arillus*. — Named from *Euonyme*, mother to the Furies, in allusion to the injurious effects produced by the fruit of this plant.

1. E. *Europæus* L. (*common Spindle Tree*); flowers mostly tetrandrous, petals acute, branches glabrous, leaves ovato-lanceolate minutely serrated. *E. Bot.* t. 362; *Ed. Cat.* p. 5.

Woods and hedges; frequent in England, and the south of Ireland; rare in Scotland. King's Park, near Edinburgh. *Fl.* May. ♄. — *Shrub* 3—5 feet high. *Bark* green, smooth. *Leaves* glabrous. *Peduncle*

[1] Sometimes, as in *Leguminosæ*, *Tamariscineæ*, *Paronychieæ*, *Crassulaceæ*, and some *Saxifrageæ*, so near the base of the germen or ovary as to appear hypogynous.

bearing a few-flowered *umbel*. *Flowers* small, white. *Fruit* obtusely angular, very beautiful, rose-coloured. *Arillus* orange-coloured. — The *berries* and even *leaves* are said to be dangerous, and the whole plant is fetid. Of its tough white wood skewers and spindles are made, and Linnæus tells us it affords the best charcoal for drawing.

Ord. XXIV. RHAMNEÆ.

Calyx 4—5-cleft, æstivation valvate. *Petals* 4—5, alternate with the calycine lobes, cucullate, sometimes wanting. *Stamens* 4—5, opposite the *petals*. *Disk* fleshy. *Ovary* wholly, or in part, superior, 2—4-celled, 2—4-seeded. *Fruit* fleshy and indehiscent or dry and dehiscent. *Seeds* erect. *Albumen* fleshy. *Embryo* straight. *Radicle* inferior. — Shrubs *or small* Trees, *with simple usually alternate leaves, minute stipules, and small greenish flowers.*—Fruit of some purgative, as our *Rhamnus catharticus;* in others the fruit yields a dye, as *R. infectorius*, &c. *Zizyphus Lotus* is one kind of the *Lotus* of the ancients. *Jujubes* are the produce of the fruit of *Zizyphus vulgaris*.

1. Rhámnus *Linn.* Buckthorn.

Cal. urceolate, 4—5-cleft. *Petals* 4—5, sometimes wanting. *Stamens* opposite the petals. *Berry* 2—4-celled, 2—4-seeded. — Name: ραμνος, in Greek, a *branch;* from its numerous branches.

1. R. *cathárticus* L. (*common Buckthorn*); spines terminal, flowers 4-cleft dicœcious, leaves ovate sharply serrated. *E. Bot.* t. 1629; *Ed. Cat.* p. 11.

Woods, hedges, and thickets; not unfrequent in England. About Dumfries, Scotland. Near Cork and Lough Erne in Ireland. *Fl.* May, June. ♄. — A spreading *shrub*. *Leaves* with 4 or 6 strong lateral nerves parallel with the margin or rib; *serratures* glandular. *Flowers* in dense fascicles. "In the *barren* flower, the tube of the *cal.* is *campanulate*, the segments ovate, 2-ribbed. *Pet.* 4, oblongo-ovate, inserted below the mouth of the *cal.*, alternate with its segments. *Stam.* inserted just below the *petals:* there is an abortive *germen* visible. In the *fertile* flower the *petals* are linear, incurved above. *Stam.* abortive. *Styles* 4, united half-way up, spreading. *Stigmas* small, slightly decurrent along the inner edge of the styles. *Germen* superior:" *Wilson*. *Berries* black, nauseous, powerfully cathartic. They afford a *yellow* dye in an unripe state; the bark a *green* dye.

2. R. *Frángula* L. (*Berry-bearing Alder; Alder Buckthorn*); unarmed, flowers perfect, leaves obovate entire. *E. Bot.* t. 250; *Ed. Cat.* p. 11.

Woods and thickets in England. Near Auchincruive, Ayrshire. *Fl.* May. ♄. — A small *shrub*. *Flowers* pedunculate, axillary, somewhat fascicled, whitish-green. *Petals* very minute. *Berries* dark-purple, with two *seeds*, purgative.

Ord. XXV. LEGUMINOSÆ.

Calyx of 4—5 *sepals*, more or less combined. *Petals* various, generally 5 and papilionaceous. *Stamens* various, generally 10, monadelphous or diadelphous. *Ovary* 1-celled, sometimes stalked. *Style* and *stigma* 1. *Legume* 2-valved, dehiscent or indehiscent. *Seeds* with or without *albumen*, upon a marginal receptacle on the upper suture. *Embryo* with the *radicle* straight or recurved upon the *cotyledons*. — Trees, Herbs, *or* Shrubs. Leaves *alternate, mostly compound and pinnated, with or without tendrils, stipuled*. — They possess very various principles and properties, and many of the plants composing this order are of the greatest service in the arts, in medicine, and domestic economy. *Indigofera* affords *indigo; Glycyrrhiza, liquorice; Astragalus, gum Tragacanth; Soja, Soy; Mucuna, cow-itch*, or *cow-age; Erythrina, gum-lac; Pterocarpus, gum-dragon*, and *Saunders-wood; Brya, Jamaica Ebony; Acacia, gum-Arabic*, and one kind of *India-rubber; Dipterix*, the *Tonquin bean; Hæmatoxylon, log-wood; Cassia, senna*, and other potent drugs; *Copaifera, balsam of Copaiva; Hymenæa, gum Anime*. Their *seeds* afford food for man and various animals, their herbage for cattle. — All the British genera are papilionaceous, and have 10 stamens, monadelphous or diadelphous.

Tribe I. Loteæ.

Stamens monadelphous or diadelphous (9 *and* 1). *Legume continuous* (*not jointed*) 1-*celled, or by the introflexion of one of the sutures spuriously* 2-*celled*. Gen. 1—11.

Sub-Tribe i. Genisteæ.

Legume 1-*celled. Stamens mostly monadelphous. Leaves simple or trifoliolate, rarely pinnate. Stems generally shrubby*. Gen. 1—5.

1. U'lex *Linn.* Furze.

Cal. of 2 sepals, with a small scale or *bractea* on each side at the base. *Legume* turgid, scarcely longer than the calyx. — Name: according to Théis, its root is *ec* or *ac*, a *sharp point*, in Celtic; whence, too, arises the French name *ajonc*, or *acjonc*, a *sharp* or *spiny rush*.

1. U. *Europæus* L. (*common Furze, Whin* or *Gorse*); calycine teeth obsolete, bracteas ovate lax, branchlets erect. *E. Bot.* t. 742; *Ed. Cat.* p. 14. — *β. minor*, branches compact. U. strictus *Mackay: Ed. Cat.* p. 14.

Heathy places, especially in sandy or gravelly soils; rare in the Scottish Highlands. *Fl.* early in spring, and throughout the summer. ♄. — *Shrub* 3—4 or more feet high, with innumerable green striated *branches*, clothed with acute branching *spines*, and having at their base a few *leaves*, which are lanceolate, a little hairy, very minute. *Cal.* pu-

bescent. *Cor.* bright yellow. *Var.* β. was discovered in the Marquess of Londonderry's park, county of Down, by *Mr. J. White;* it is readily propagated by cuttings, and now well known in our gardens and nurseries under the name of *Irish Furze.* It bears few flowers; but may be at all times distinguished from *U. Europæus* by its smaller size, by its dense and compact, rather formal, mode of growth and its very upright branches, which are so soft and succulent that sheep and cattle are extremely fond of them; so that Mr. Murray of the Glasgow Bot. Garden strongly, and very judiciously, recommends it to be planted for early spring feed.

2. U. *nánus* Forst. (*dwarf Furze*); teeth of the calyx lanceolate spreading, bracteas minute close-pressed, branches reclining. *E. Bot.* t. 743; *Ed. Cat.* p. 14.

Dry heaths, in many parts of England and Ireland. Pentland Hills, Scotland. *Fl.* mostly in autumn. ♄. — Smaller than the last in all its parts. The essential character, according to Sir J. E. Smith, consists in the more distinct and spreading *sepals,* and the more minute, rounded, close-pressed, and often hardly discernible *bracteas.*

2. Genísta *Linn.* Green-weed.

Cal. 2-lipped; upper lip with 2 deep segments, lower one with 3 teeth. *Standard* oblong. *Legume* flat or turgid, many-seeded. — Named from *Gen,* a *shrub,* in Celtic.

1. G. *tinctória* L. (*Dyer's Green-weed, Woad-Waxen*); unarmed, erect, leaves lanceolate nearly glabrous, branches rounded striated, flowers spicato-racemose, legumes glabrous. *E. Bot.* t. 44; *Ed. Cat.* p. 6. — β. *prostrata.* G. humifusa *Dicks.*

Pastures, thickets, and borders of fields, frequent in England and the Lowlands of Scotland. Between Killiney Hill and Bray, Ireland. — β. Heaths and rocks about the Lizard and Land's End: *Mr. Borrer. Fl.* July, Aug. ♄. — 1—2 feet high. *Leaves* rather distant. *Flowers* pale yellow, almost sessile, with a small floral leaf or *bractea* at the base. — Employed to dye yarn of a yellow colour.

2. G. *pilósa* L. (*hairy Green-weed*); unarmed, procumbent, leaves lanceolate complicate silky beneath, flowers axillary on short pedicels, legumes downy. *E. Bot.* t. 208; *Ed. Cat.* p. 6.

Dry sandy or gravelly heaths. About Bury. On the forest, by the road from Marcsfield to Groombridge, Sussex: *Mr. Hankey.* Between Little Malvern and Malvern Wells. Near the Lizard and St. Agnes' Head, Cornwall. Foot of Cader Idris, N. Wales. *Fl.* May, and again in Sept. ♄. — A small, much-branched, tortuose, woody-stemmed *plant. Flowers* small, bright yellow.

3. G. *Anglica* L. (*Needle Green-weed,* or *Petty-Whin*); spinous, leaves ovato-lanceolate glabrous, spines simple none on the flowering branches, flowers axillary somewhat racemed, legumes glabrous. *E. Bot.* t. 132; *Ed. Cat.* p. 6.

Moist heaths and moory ground, not unfrequent. *Fl.* June. ♄. — *Stems* declined, very spinous. *Leaves* very small. *Flowers* yellow.

3. Cýtisus *Linn.* Broom.

Cal. 2-lipped; upper lip nearly entire, or with 2 small teeth, lower one 3-toothed. *Standard* large, broadly ovate. *Keel* very blunt, including the stamens. *Legume* flattened, many-seeded. — Name: κυτισος, of the ancient Greeks; said to be so called because it came from the island of *Cythnos*, one of the Cyclades.

1. C. *scopárius* DC. (*common Broom*); branches angled glabrous, leaves ternate stalked, upper ones simple, leaflets oblong, flowers axillary shortly pedicellate, legumes hairy at the margin. Spartium *L.: E. Bot.* t. 1339. Genista *Lam.* Sarothamnus, *Ed. Cat.* p. 12.

Dry hills and bushy places, frequent. *Fl.* June. ♄. — 3—6 feet or more high. *Branches* long, straight, green. *Flowers* large, bright yellow. *Keel* broad. *Standard* and *wings* much spreading. *Legumes* large, compressed, dark brown. — The young green tops are said to be powerfully purgative and diuretic; and they are very bitter.

4. Onónis *Linn.* Rest-harrow.

Cal. 5-cleft, its segments linear. *Standard* large, striated. *Legume* turgid, sessile, few-seeded. — Named from ονος, an *ass*; because the plant is eaten by that animal.

1. O. *arvénsis* L. (*common Rest-harrow*); shrubby, hairy, branches spinous, leaves often sessile, lower ones ternate, the rest simple serrated at the base, flowers mostly solitary subsessile, calyx much shorter than the corolla, much longer than the obliquely rhomboid 2—3-seeded legume. *E. Bot.* t. 682, and *Suppl.* t. 2659. (*procumbent var.*) O. Antiquorum α arvensis, *Ed. Cat.* p. 9.

Barren pastures and borders of fields. *Fl.* June—Aug. ♃. — A very variable plant, erect or procumbent and rooting, more or less spinous; *leaves* ovate or cuneate; *flowers* rather large, rose-coloured, sometimes white. Smith enumerates 3 *vars.*, and DeCandolle makes of them two species, *O. procurrens* and *O. spinosa.*[1]

[1] Koch, in his *Fl. Germ.*, thus distinguishes them: — *O. spinosa* (L. var. α.); caulibus erectis adscendentibusque unifariam villosis sparseque glandulosis, ramis interrupte racemosis spinosis, spinis subgeminis, floribus axillaribus solitariis, pedunculis calyce brevioribus, foliolis ovali-oblongis stipulisque denticulatis glabriusculis, leguminibus ovatis erectis longitudine calycis longioribusque, seminibus tuberculato-scabris.

O. repens (L.), (O. procurrens *Wallr.*); caulibus procumbentibus basi radicantibus villosis, ramis adscendentibus laxe racemosis apice spinosis, floribus axillaribus solitariis, pedunculis calyce brevioribus, foliolis ovalibus stipulisque denticulatis glandulose pilosis, leguminibus erectis ovatis calyce brevioribus seminibus tuberculato-scabris. This is the *O. arvensis var.* γ. Smith. To the above species Koch adds *var.* spinis nullis, O. arvensis α. inermis *Smith.* *O. Antiquorum* L. Koch considers still different from these two, especially in the smooth seeds. — I cannot satisfy myself we possess more than one species.

2. O. *reclináta* L. (*small spreading Rest-harrow*); herbaceous spreading viscid and hairy, leaves all stalked ternate, stipules broadly ovate, peduncles 1-flowered, calyx about as long as the corolla, shorter than the closely reflexed cylindrical legumes, which have 14—16 warted seeds. *Ed. Cat.* p. 9; *E. Bot. Suppl.* t. 2838.

Steep bank, close by the sea, 2 m. west from Tarbert, Galloway: *Dr. Graham*, 1836. *Fl.* July. ⊙. — This little species has been gathered in the above extremely wild locality, in considerable quantity, by Dr. Graham and his students. It is a South of Europe plant. The *O. Cherleri* L. from Montpellier (*Thomas*), from Smyrna (*Unio Itiner.*), and from Sicily (*Swainson*), and the *O. mollis* of Tenore (*Herb. Hook.*), are not distinct from it.

5. Anthýllis *Linn.* Kidney-vetch.

Cal. inflated, 5-toothed. *Petals* nearly equal in length. *Legume* oval, 1—3-seeded, enclosed in the permanent calyx. — Name: ανθος, a *flower*, and ιουλος, a *beard*, or *down*, from the downy calyces.

1. A. *Vulnerária* L. (*common Kidney-vetch*, or *Lady's Fingers*); herbaceous, leaves pinnated unequal, heads of flowers in pairs. *E. Bot.* t. 104; *Ed. Cat.* p. 1.

Dry pastures, frequent. With red and sometimes white or cream-coloured fl., in Devonshire, Wales and south of Ireland, mostly by the sea. *Fl.* June—Aug. ♃. — *Stem* ascending. *Leaflets* 5—9, lanceolate, entire, hairy, terminal one the largest. *Flowers* in crowded *heads*, with hairy *calyces*, and large digitate or palmated *bracteas*.

Sub-Tribe ii. Trifolieæ.

Legume 1-*celled*. *Stamens diadelphous*. *Stems herbaceous, rarely shrubby*. *Leaves* 3—5-*foliolate, rarely impari-pinnate*. Gen. 6—9.

6. Medicágo *Linn.* Medick.

Legume falcate or spirally twisted. — Name: the μεδικη of the Greeks, so called because it was introduced into Greece by the Medes.

1. M. **falcáta* L. (*yellow Sickle Medick*); decumbent, nearly glabrous, leaflets ovato-oblong toothed, peduncles racemed, legumes falcate and very slightly twisted glabrous. *E. Bot.* t. 1749; *Ed. Cat.* p. 8.

Pastures and borders of fields. *Fl.* June, July. ♃. — *Flowers* yellow.

2. M. **sativa* L. (*purple Medick*, or *Lucerne*); erect, glabrous, leaflets obovato-oblong toothed, peduncles racemed, legumes loosely spirally twisted. *E. Bot.* t. 1749; *Ed. Cat.* p. 8.

Dry gravelly banks and pastures, not wild. *Fl.* June, July. ♃. — This has purple *flowers* and a spirally-twisted *pod*, and bears much resemblance to the preceding, having been suspected to be only a cultivated state of it. In habit the two differ remarkably from the following.

3. M. *lupúlina* L. (*black Medick*, or *Nonsuch*); procumbent, leaflets obovato-cuneate, stipules nearly entire, flowers capitato-spicate, legumes kidney-shaped 1-seeded. *E. Bot.* t. 971; *Ed. Cat.* p. 8.

Abundant in waste grounds and cultivated fields. *Fl.* May—Aug. ☉. — A valuable plant in agriculture, very similar in habit to *Trifolium filiforme*. *Flowers* crowded, small, yellow. *Legumes* small, rugged, of a black colour when ripe.

4. M. *maculáta* Sibth. (*spotted Medick*); procumbent, leaflets obcordate, stipules toothed, peduncles 3—5-flowered, legumes compactly spiral compressed, the spires furrowed at the edge and fringed with a double row of long spreading curved spines. *Ed. Cat.* p. 8. M. polymorpha, *E. Bot.* t. 1616.

Gravelly pastures in the middle and south of England. Ormeshead, N. Wales. *Fl.* May, June. ☉. — *Leaflets* marked with a purple spot in the centre.

5. M. *muricáta* All. (*flat-toothed Medick*); procumbent, leaflets obcordate downy, stipules toothed, peduncles 1—3-flowered, legumes compactly spiral subglobose, the spires keeled at the margin and fringed with a close double row of short subulated curved spines. *Sm. E. Fl.* vol. iii. p. 320; *Ed. Cat.* p. 8. M. polymorpha ζ. *L.*

On the sea-bank, Orford, Suffolk: *Ray* (*in Sm.*). *Fl.* June, July. ♃.— *Leaves* hoary with fine pubescence. In common with Sir J. E. Smith, I have seen no native plants of this, and have drawn up my character from a south of France specimen given me by Mr. Bentham, who has studied this genus with great attention.

6. M. *mínima* L. (*little Bur-Medick*); procumbent, leaflets obcordate downy, stipules nearly entire, peduncles 1—5-flowered, legumes compactly spiral subglobose, the spires narrow keeled at the margin with a compact double row of uncinate prickles. *Benth. in E. Bot. Suppl.* t. 2635; *Ed. Cat.* p. 8. — β. stems and leaves hoary. M. minima β. canescens *DC.*

Sandy fields and waste places, rare. Narburgh, Norfolk; and near Newmarket. Between Sandwich and Pegwell, Kent. Landguard Fort, Suffolk, and β. Pegwell Bay, Isle of Thanet. *Fl.* June, July. ☉.— It is possible that Ray's plant, taken for *M. muricata* (see preceding sp.), may be the present, which Prof. Henslow finds on the same coast. The latter plant precisely accords with specimens from Mr. Bentham of the true *M. minima*.

7. M. *denticuláta* Willd. (*reticulated Medick*); nearly glabrous, leaflets obcordate, stipules laciniated, peduncles 2—5-flowered,

legumes broad loosely spiral and flat with 1—3 convolutions reticulated, the margin thin keeled with a double compact row of subulate curved prickles. *G. E. Smith, Pl. of S. Kent*, p. 43. t. 1. f. 4; *Benth. in E. Bot. Suppl.* t. 2634; *Ed. Cat.* p. 8. M. maculata β., *E. Fl.* v. iii. p. 319.

Upon exposed sandy banks on the coast of Kent. Near Weymouth. Cley, Norfolk. *Fl.* April—June. ⊙. — The Rev. G. E. Smith has well distinguished the present species in the little work just mentioned. Its *legumes* are very beautiful, and quite unlike any of the preceding. Mr. Smith speaks of 2 *vars.*, one with long and the other with shorter spires; which, in all probability, correspond with the α. and β. of Mr. Bentham in his *Cat. of Pl. of the Pyr. and Lang.*, p. 103.

7. Melilótus *Tourn.* Melilot.

Legume 1- or few-seeded, indehiscent, longer than the cal. *Petals* distinct, deciduous. — Flowers *racemose.* Leaves *ternate.* — Name: *mel, honey*, and *Lotus*, the genus so called.

1. M. *officinális* Lam. (*common yellow Melilot*); legumes 2-seeded ovate wrinkled, racemes lax, corolla more than twice as long as the calyx, petals nearly equal in length, stem erect. *Ed. Cat.* p. 8. Trifolium Melilotus *L.*: *E. Bot.* t. 1340.

Bushy places and way-sides, frequent. *Fl.* June, July. ⊙. — 2—3 ft. high. *Leaves* obovate, serrated. *Flowers* yellow, in unilateral, pedunculated, axillary *racemes.* — This plant, while drying, smells like *Anthoxanthum odoratum.*

2. M. *leucántha* Koch (*white Melilot*); legumes 2-seeded ovate wrinkled, racemes lax, corolla twice as long as the calyx, keel and wings shorter than the standard, stem erect. *Hook. in E. Bot. Suppl.* t. 2689. M. vulgaris *Willd.*: *Ed. Cat.* p. 8. Trifolium officinale β. *L.*

Denes at Yarmouth. Near Warrington. Chipstead, Surrey. Near Putney. Near Edinburgh. *Fl.* July, Aug. ♃.

8. Trifólium *Linn.* Trefoil.

Legume 1- or more seeded, indehiscent, shorter than the calyx by which it is enclosed (except in *T. ornithopodioides*). *Petals* mostly combined by their claws and persistent. — Flowers *capitate.* Leaves *ternate.* — Named in allusion to its 3 leaves or leaflets.

* *Legumes with several seeds.*

1. T. *ornithopodioídes* L. (*Bird's-foot Trefoil*); flowers about 3 together, legumes naked with about 8 seeds twice as long as the calyx, leaflets obcordate toothed at the extremity, stems decumbent. *E. Bot.* t. 1047; *Ed. Cat.* p. 14. Trigonella *DC.*

Dry sandy pastures, but not very general; mostly on the east coast. About Edinburgh. *Fl.* June. ⊙. — *Stems* spreading, 3—5 inches in length. *Flowers* small. The long *legumes, petals*, and the habit of this plant do not accord with this genus, nor yet with *Trigonella.*

2. T. *répens* L. (*white Trefoil*, or *Dutch Clover*); heads umbellate globose, legumes with 4 seeds, calyx-teeth unequal, leaflets obcordate serrulate, stems creeping. *E. Bot.* t. 1769; *Ed. Cat.* p. 14.

Meadows and pastures, frequent. *Fl.* through the summer. ♃.—Heads of *flowers* white. Each flower is on a footstalk which becomes recurved after flowering, and then all the *legumes* are drooping and covered with the withered brown *corollas*. This trefoil is in great repute for pastures. The *leaflets* have often a dark spot at their base, with a white line bordering it near the middle.

** *Legumes* 1- *or* 2-*seeded. Standard of the corolla deciduous or unaltered. Calyx not inflated, mostly hairy.*

3. T. *subterráneum* L. (*subterraneous Trefoil*); heads lateral stalked hairy of few flowers, at length deflexed and throwing out from their centre thick fibres palmated at the extremity (abortive calyces) which are closely bent down over the reflexed fruit. *E. Bot.* t. 54; *Ed. Cat.* p. 14.

Dry gravelly pastures in England. *Fl.* May. ☉.—3—6 or 8 inches long, decumbent, hairy, with large, ovate, membranaceous *stipules*. *Flowers* long and very slender, almost white. *Peduncles* at length elongated, so that the heads of flowers reach the ground. The young *fruit* then becomes deflexed, and from the top of the peduncle there arise many thick short fibres with 5 palmated teeth at their extremity, which soon become recurved over the fruit and serve to bury it in the soil. From the number of teeth terminating each of the above-mentioned fibres, as well as from their comparative length and thickness, it is natural to conclude, with DeCandolle, that the latter are abortive *calyces*. *Petals* partially caducous. *Legumes* large, ovato-globose.

4. T. *ochroleúcum* L. (*Sulphur-coloured Trefoil*); heads terminal solitary, teeth of the calyx subulate, lower one much longer than the rest, leaflets elliptic or obovate, those of the lower leaves heart-shaped, stem ascending downy. *E. Bot.* t. 1224; *Ed. Cat.* p. 14.

Pastures and way-sides in England, on gravel or chalk. Frequent also in the clayey soil of Norfolk and Suffolk. *Fl.* July, Aug. ♃.—A foot or more high. *Petioles* long. *Stipules* subulate, ribbed. Heads of *flowers* large, at first hemisphærical, at length oval, cream-coloured. The *corolla* turns brown and is persistent.

5. T. *praténse* L. (*common purple Trefoil*); heads dense ovate, teeth of the calyx setaceous, lower one longer than the rest $\frac{1}{2}$ as long as the tube of the corolla, stipules ovate bristle-pointed, leaflets oval or obcordate, stems ascending. *E. Bot.* t. 1770; *Ed. Cat.* p. 14.

Meadows and pastures, frequent. *Fl.* summer months. ♃.—*Flowers* reddish-purple. This is the common *Clover*, so much cultivated for hay. The *leaflets* are oval, obovate, or obcordate, often marked with a white lunulate spot.

6. T. *médium* L. (*zigzag Trefoil*); heads of flowers lax subglobose solitary terminal, calyx-teeth setaceous, lower one longer

than the rest about equal to the tube of the corolla, stipules lanceolate acuminate, leaflets elliptical, stems branched zigzag. *E. Bot.* t. 190 ; *Ed. Cat.* p. 14.

Pastures, frequent. *Fl.* July. ♃. — *Stem* remarkably zigzag. Heads of *flowers* larger than the last, deeper purple. *Leaves* spotless. Inferior in quality to *T. pratense*, but better fitted for pasture on light soils.

7. T. *marítimum* Huds. (*Teasel-headed Trefoil*); heads ovato-globose stalked terminal, teeth of the calyx broad acuminate rigid, the lower one much longer and larger than the rest shorter than the claws of the petals, all of them at length enlarged and spreading, stipules subulato-lanceolate, leaflets oblongo-obovate, stem ascending. *E. Bot.* t. 220 ; *Ed. Cat.* p. 14.

Salt-marshes on the east as far north as Norfolk, and south coast of England, as far as Somersetshire. Newport, Monmouthshire : *J. E. Bowman.* Near Kilbarick Church, Ireland. *Fl.* June, July. ☉.

8. T. **stellátum* L. (*Starry-headed Trefoil*) ; heads terminal globose stalked hairy, calyx-teeth longer than the corolla setaceous at length dilated veined and spreading its tube closed with hairs, stipules broadly ovate crenate ribbed, leaves obcordate. *E. Bot.* t. 1545 ; *Hook. in Fl. Lond. N. S.* t. 95 ; *Ed. Cat.* p. 14.

Sea-coast, Sussex, between Shoreham harbour and the sea, in great plenty. *Fl.* July, Aug. ☉. — A singular and beautiful species, with long *calyces*, and, at first, straight, setaceous *teeth*, which conceal the small cream-coloured *corolla*, and then become greatly enlarged, spreading in a stellated manner.

9. T. *arvénse* L. (*Hare's-foot Trefoil*) ; heads very hairy soft nearly cylindrical terminal stalked, calyx-teeth longer than the corolla permanently setaceous at length somewhat spreading, stipules ovato-acuminate, leaflets lanceolate obtuse, stems erect much branched. *E. Bot.* t. 944 ; *Ed. Cat.* p. 14.

Corn-fields and dry pastures, abundant. *Fl.* July, Aug. ☉. — *Stem* 6—12 inches high. *Flowers* very minute, almost white. Remarkable for its numerous, subcylindrical, soft, hairy *heads* or *spikes*.

10. T. *scábrum* L. (*rough rigid Trefoil*) ; heads terminal and axillary sessile ovate, calyx-teeth unequal subulate very rigid 1-nerved at length patent, leaflets obcordate serrulate, stems procumbent. *E. Bot.* t. 903 ; *Ed. Cat.* p. 14.

Chalky or dry sandy fields, in several parts of England. Anglesea. Sea-shores, near Edinb. and Dunbar. *Fl.* May, June. ☉. — A small spreading *plant*, with many terminal and axillary, sessile, ovate *heads*, very rigid in fruit. *Leaflets* strongly nerved.

11. T. *glomerátum* L. (*smooth round-headed Trefoil*) ; heads terminal and axillary sessile globose, calyx-teeth ovate very acute leafy veiny at length reflexed, leaflets obcordate toothed, stems procumbent. *E. Bot.* t. 1063 ; *Ed. Cat.* p. 14.

Gravelly heaths and pastures in the east and south of England. *Fl.* June. ⊙. — Similar to the last; but with rounder *heads*, and broader, greener, and more foliaceous and spreading *teeth* to the *calyx*.

12. T. *suffocátum* L. (*suffocated Trefoil*); heads lateral sessile roundish, petals shorter than the membranaceous faintly striated calyx whose teeth are broadly subulate spreading, legumes 2-seeded. *E. Bot.* t. 1049; *Ed. Cat.* p. 14.

Sandy sea-shores, rare. On the coasts of Norfolk and Suffolk. Hastings. Anglesea. S. Kent. *Fl.* June, July. ⊙. — *Stems* 3—4 inches long. Remarkable for its dense sessile *heads* of inconspicuous *flowers*, and for its thin, delicate, scarcely striated *calyx*.

13. T. *striátum* L. (*soft knotted Trefoil*); downy heads terminal and axillary ovate subsolitary sessile, calyx striated very rigid hairy with unequal straight small setaceous teeth, leaflets obcordate nearly entire, stems ascending. *E. Bot.* t. 1843; *Ed. Cat.* p. 14.

Dry pastures and fields, frequent. *Fl.* June. ⊙. — 4—8 or 10 inches long, more or less procumbent or reclined, pubescent. *Flowers* small, purplish-red. *Cal.* deeply furrowed, oval, a little swollen, with 5, almost setaceous, straight, not curved, *teeth*.

*** *Cal. remarkably inflated after flowering and arched above. Standard of the corolla deciduous.*

14. T. *fragíferum* L. (*Strawberry-headed Trefoil*); heads globose upon long lateral stalks, calyx after flowering inflated membranaceous reticulated downy with two of the teeth bent down, stem creeping, leaflets obcordate serrated. *E. Bot.* t. 1050; *Ed. Cat.* p. 14.

Meadows and pastures. *Fl.* July, Aug. ♃. — *Flowers* very small, purplish-red. The *heads* of *flowers*, an inch in diameter, are often more or less coloured, so as not unaptly to represent a strawberry. Mouth of the *calyx*, as in the following species, singularly contracted when enclosing the fruit.

15. T. **resupinátum* L. (*reversed Trefoil*); heads hemisphærical, at length globose on stalks at first only about as long as the petiole, corollas resupinate, calyx after flowering membranaceous reticulated inflated hairy acute, two of the teeth longer patent, leaflets obovate, stem prostrate. *Sow. in E. Bot. Suppl.* t. 2789; *Ed. Cat.* p. 14.

Meadows near Bristol, and near Poole. *Fl.* July. ⊙.

**** *Standard of the corolla persistent, deflexed, dry, enveloping the fruit. (Flowers yellow.)*

16. T. *procúmbens* L. (*Hop Trefoil*); heads broadly oval many-flowered dense, standard at length deflexed furrowed, leaves stalked, leaflets obcordate, central one stalked. — *α.* stems procumbent, peduncles longer than the leaves. *E. Bot.* t. 954; *Ed. Cat.* p. 14. — *β.* stems erect, peduncles shorter than the leaves. *DC.* T. campestre *Schreb.*: *Ed. Cat.* p. 14.

Dry pastures and borders of fields, frequent. — β. In sandy soil. Near Edinb. *Fl.* June, July. ⊙. — This is well distinguished from the following by its large, dense, hop-like *heads* of *flowers*, and the *standard* which is striated when old. It is more difficult to distinguish the erect *var.* β. from the true *T. agrarium* of Linn. That plant is however larger and stronger in all its parts, and has oblong nearly sessile *leaflets*, which are much shorter than the *peduncles*.

17. T. *filifórme* L. (*lesser yellow Trefoil*); heads of few lax somewhat racemose flowers, standard with its sides at length deflexed nearly even, leaves almost sessile, leaflets obcordate, central one mostly on a short stalk, stems procumbent. — α. *major*; larger, heads many-flowered, peduncles much longer than the leaves. T. filiforme *Sturm, Deutschl. Fl. cum Ic., and foreign authors; Ed. Cat.* p. 14. T. minus *Relh.: E. Bot.* t. 1256; *Ed. Cat.* p. 14. — β. *microphyllum* (*DC. Prod.* v. ii. p. 206); smaller, heads of a very few distant flowers, peduncles frequently not exceeding the leaves. T. lupulinum minimum *Dill. in Raii Syn.* p. 331. t. 14. f. 4. T. filiforme, *E. Bot.* t. 1257.

Dry pastures, and road-sides, frequent. *Fl.* June, July. ⊙. — A careful examination of numerous specimens of this *Trefoil*, from various parts of England and the Continent, has satisfied me that Dillenius's plant in *Ray*, t. 14. f. 4, is only a starved state of the commoner appearance of *T. filiforme*, and the same as the *var. microphyllum* of Seringe in DeCandolle. The *E. Bot. T. filiforme* is a little more luxuriant, and intermediate states may be seen between it and the acknowledged *T. filiforme* of Continental writers. Mr. W. Wilson, however, considers them distinct. In all, the *flowers* are pedicellated, and in the few-flowered varieties the *pedicels* are more evident, and thus appear more truly racemose.[1]

9. Lótus *Linn.* Bird's-foot Trefoil.

Legume cylindrical, somewhat spongy within, and imperfectly many-celled. *Keel* acuminated. — Name: supposed to be one of the three kinds (the *herbaceous*) of the Λωτος of the Greeks.

1. L. *corniculátus* L. (*common Bird's-foot Trefoil*); heads depressed umbellate 8—10-flowered, stems decumbent, leaflets obovate, peduncles very long, claw of the standard inflated above. — α. *vulgaris*; everywhere glabrous or nearly so. L. corniculatus *L.: E. Bot.* t. 2090; *Ed. Cat.* p. 8. — β. *villosus*; stem, leaves, and calyx clothed with very long spreading hairs. L. corniculatus γ. *DC. Prod.* v. ii. p. 214.

[1] *Trifolium incarnatum* is given by *Mr. Babington* as an inhabitant of Jersey, as likewise of some parts of England where it is extensively cultivated. In both cases it is of recent introduction. Again, *T. strictum* L. finds a place in *Bab. Fl. Sarn.*; but there is reason to believe, on the authority of Mr. Borrer, that an injured specimen of *T. glomeratum* had been mistaken for it. *T. Bocconi*, also, has been detected by Mr. Borrer on a dry fence at Cagewith, Cornwall: as this is, however, a very southern European species, inhabiting Italy, Corsica, and Portugal, I must hesitate, at present, about admitting it.

Pastures every where, abundant. — β. rare. Higham, Kent. Budleigh. Salterton: *Dr. Loydd.* Sandgate. *Fl.* July, Aug. ♃. — The *var.* β. is a very remarkable one (the *villosus* of Thuillier's Flora of Paris), and at least as deserving of being considered a distinct species as the two following.

2. L. *ténuis* Waldst. et Kit. (*slender Bird's-foot Trefoil*); heads depressed umbellate 6—10-flowered, stems prostrate slender, leaflets lanceolate, peduncles very long, claw of the standard inflated above. *Borr. et Hook. in E. Bot. Suppl.* t. 2615; *Ed. Cat.* p. 8. L. corniculatus *var.* tenuifolius *Poll.* L. decumbens *Forst. Tonb.* 86; *E. Fl.* v. iii. p. 2615. L. depressus et humifusus *Willd.*

Dry and waste places, in many parts of England and Scotland. *Fl.* July. ♃. — I am really unable to point out any marks by which this may be known from the preceding, except its more slender and straggling habit, and narrower foliage. It is by no means an uncommon plant.

3. L. *májor* Scop. (*narrow-leaved Bird's-foot Trefoil*); heads depressed umbellate 8—10-flowered, stems nearly erect tubular, leaflets obovate, peduncles very long, claw of the standard narrow. *E. Bot.* t. 2091; *Ed. Cat.* p. 8. L. cornic. γ. *Fl. Br.* p. 764.

Sides of ditches and moist bushy places, by no means unfrequent. *Fl.* July, Aug. ♃. — The place of growth of this plant, in moister situations than *L. corniculatus*, consequently inducing a greater developement of every part, is, I think, in itself, almost sufficient to account for the trifling variations which are said to distinguish it from that well-known species. The difference of breadth in their filaments, mentioned by Smith, Mr. Wilson finds not to be constant. *L. corniculatus*, he adds, "seems to be characterised chiefly by the vaulted or gibbous appearance of the upper part of the *claw* of the *standard*, which raises up the two teeth of the *calyx* above." But is this mark constant? Smith says the *claw* of the *standard* of our present plant, "though linear, is vaulted." Mr. Borrer dwells much on the "decided character" in the calyx of *L. major*, pointed out by Dr. Beeke in *Bot. Guide*, p. 528, viz. that "*its teeth are always divergent from their first visible formation.*" In several of my specimens of *L. cornic.*, the calycine teeth are as divergent as in any of *L. major*. I possess a very hairy state of this plant, gathered in Ireland.

4. L. *angustíssimus* L. (*slender Bird's-foot Trefoil*); villous, flowers solitary or in pairs or 3—4 in a head, their peduncles about twice as long as the leaves, leaflets ovato-lanceolate, calyx-teeth very long, stems procumbent, legumes very slender. *Ed. Cat.* p. 8. — α. *minor;* heads 1—2-flowered, peduncles short. L. hispidus *Desf.: Ed. Cat.* p. 8.; *Woods in E. Bot. Suppl.* t. 2823. L. diffusus, *E. Bot.* t. 925. — β. *major;* heads 3—4-flowered, peduncles elongated, legumes shorter and broader.

South of England, very rare. — α. On the rocky beach at Hastings, Sussex: at Kingsteignton and Bishopsteignton, Devon. Strand, near

Passage, Ireland. The St. Vincent's-Rocks station, mentioned by Smith, is considered to belong to *L. tenuis.* — β. Cornwall, near the Lizard and Penzance. Dartmouth, and Channel Islands: *Mr. Joseph Woods. Fl.* May, June. ☉. — *Flowers* much smaller, and aspect very different from any of the preceding.

Sub-Tribe iii. Astragaleæ.

Legume spuriously and longitudinally 1- *or* 2-*celled, by the introflexion of one of the sutures. Stamens diadelphous* (9 *and* 1). *Stems herbaceous, or somewhat shrubby. Leaves pinnate.* (Gen. 10, 11.)

10. Oxýtropis *DeCand.* Oxytropis.

Keel of the *cor.* with a narrow point. *Legume* 2-celled (more or less perfectly); *cells* formed by the inflexed margins of the upper suture. — Named from οξυς, *sharp,* and τροπις, a *keel,* one of the essential characters of this Genus, as distinguishing it from the preceding.

1. O. *Uralensis* DC. (*hairy Mountain Oxytropis*); silky, stemless, scape longer than the leaves, legumes erect ovato-cylindrical inflated pubescent 2-celled, style persistent. *Ed. Cat.* p. 9. Astragalus *L.: E. Bot.* t. 466.

Dry mountain pastures, in Scotland. Queensferry; Montrose; Mull of Galloway. Frequent on the coast of Sutherland. *Fl.* June, July. ♃. — A very beautiful plant, clothed with silky pubescence, especially on the young leaves. *Leaflets* 8—12 pairs with an odd one, narrow, ovate, acute. *Scape,* when in *fr.,* 4—6 inches high. *Flowers* capitate, bright purple.

2. O. *campéstris* DC. (*yellowish Mountain Oxytropis*); somewhat silky, stemless, scape about the same length as the leaves, legumes erect ovate inflated pubescent semibilocular. *Ed. Cat.* p. 9. Astragalus *L.: E. Bot.* t. 2522.

Rocks facing the south, a little to the north of Bradooney, in the Clova Mountains. *Fl.* July. ♃. — *Leaflets* elliptical-lanceolate. *Flowers* capitate, yellowish, tinged with purple.

(*Coronilla varia* L. has been found in Devon, at Bury-head, by *Dr. Bromfield;* and at Linton, by the *Rev. Mr. Levett,* in situations *apparently* wild.)

11. Astrágalus *Linn.* Milk-vetch.

Keel of the *corolla* obtuse. *Legume* 2-celled (more or less perfectly); *cells* formed by the inflexed margins of the lower suture. — Named from αστραγαλος, one of the *bones of the heel,* in allusion to the knotted root of that individual plant to which it was formerly applied.

1. A. *glycyphýllus* L. (*sweet Milk-vetch*); stem prostrate, legumes somewhat triangular curved sessile glabrous, leaves longer than the peduncles, leaflets oval. *E. Bot.* t. 203; *Ed. Cat.* p. 2.

Woods and thickets, in a gravelly or calcareous soil; rare in Scot-

land; about Edinburgh. *Fl.* July. ♃.—Well distinguished by its size. *Stem* prostrate, 2—3 feet long. *Leaves* with large ovate acute *stipules*. *Flowers* dingy yellow. *Legumes* an inch or more in length, curved.

2. A. *hypoglóttis* L. (*purple Mountain Milk-vetch*); stem prostrate, leaflets slightly emarginate, legumes erect capitate hairy their cells 1-seeded. *E. Bot.* t. 274; *Ed. Cat.* p. 2.

Dry gravelly or chalky pastures; chiefly in the E. of England and Scotland, as far N. as Blair in Athol. *Fl.* July. ♃.—*Stem* weak, a few inches in length. *Leaflets* elliptic-ovate, retuse, hairy. *Peduncles* longer than the leaves, curved upwards. *Heads of flowers* large, in proportion to the size of the plant, bluish-purple, sometimes white. *Legumes* ovate, acuminate, hairy.

3. A. *alpínus* L. (*alpine Milk-vetch*); pubescent, stem ascending, leaflets elliptical, stipules ovate free, legumes elliptical stipitate pendulous clothed with black hairs. *Grah. in E. Bot. Suppl.* t. 2717; *Ed. Cat.* p. 2. Phaca astragalina *DC.* and others.

Head of the Glen of the Dole, Clova: *Mr. Brand, Dr. Greville, Dr. Graham.* *Fl.* July. ♃.—This interesting addition to the British Flora was made in 1831, upon ground frequently visited by Botanists of no mean fame, who appear entirely to have overlooked it. *Stem* slender, much and diffusely branched. *Racemes* of few, spreading or drooping *flowers*, white, tipped with purple.

Tribe II. Hedysareæ.

Stamens diadelphous (9 *and* 1.) *Legume separating transversely into* 1-*seeded joints or cells.* (Gen. 12—15.)

Sub-Tribe i. Coronilleæ.

Flowers umbellate. Legume rounded or compressed. (Gen. 12—14.)

12. Ornithopus *Linn.* Bird's Foot.

Legume compressed, curved, of many close, single-seeded joints, whose sides are equal; *keel* very small.—Name: ορνις, ορνιθος, a *bird*, and πους, a *foot*, from the similarity of the seed-vessels to a bird's foot.

1. O. *perpusíllus* L. (*common Bird's Foot*); leaves pinnated with 6—9 pairs of leaflets and a terminal one, flowers capitate bracteated, legumes curved upwards. *E. Bot.* t. 369; *Ed. Cat.* p. 9.

Sandy and dry gravelly soil; not frequent in Scotland. Very fine in thin soil upon whinstone at Touch, Stirling: *Dr. Graham.* Sandy fields in Kinross-shire: *Mr. Arnott.* Near Dumbarton. *Fl.* June. ☉.—*Stems* 2—6 inches high, much branched at the base and spreading. *Leaflets* oval. *Flowers* white with red lines.

13. Arthrolóbium *Desv.* Joint-vetch.

Legume cylindrical, curved, of many close, single-seeded joints, whose sides are equal. *Keel* very small. — Name: αρθρος a *joint*, and λοβος, a *pod*, from the jointed character of *the seed-vessel.*

1. A. *ebracteátum* DC. (*Sand Joint-vetch*); stem filiform, peduncles about equal to the leaves 2—4 flowered, stipules very minute, leaves pinnated with many pairs of equal elliptic-oblong leaflets, the lower ones remote from the stem. *DC. Bot. Gall.* i. 146; *Bab. Fl. Sarn.* p. 29; *Ed. Cat.* p. 2; *Eng. Bot. Suppl.* t. 2844. Ornithopus *Brot.*

Sandy ground near Grand Havre, Guernsey, but rare; Alderney: *Babington and Christy.* Scilly: *Miss Young.* *Fl.* July, Aug. ☉.

14. Hippocrépis *Linn.* Horse-shoe Vetch.

Legume compressed, submembranaceous, of numerous joints, which are curved like a horse-shoe, so that each legume has many deep notches on one side. — Name: ιππος, a *horse*, and κρηπις, a *shoe*, from the form of the fruit.

1. H. *comósa* L. (*tufted Horse-shoe Vetch*); legumes 5—8 clustered pedunculated curved scabrous sinuated at each margin. *E. Bot.* t. 31; *Ed. Cat.* p. 6.

Chalky and limestone banks and pastures, plentiful in the chalk counties of England. Dundonald near Ayr, Scotland. *Fl.* July. ♃. — *Stems* 4—6 inches high, much branched and woody at the base. *Leaflets* 4—6 pairs, with an odd one, obovato-elliptical. *Peduncles* long. *Flowers* pale-yellow, much resembling those of *Lotus corniculatus*; but the *legume* is quite different, and very remarkable.

Sub-Tribe ii. Euhedysareæ.

Flowers racemose. Legume compressed. (Gen. 15.)

15. Onóbrychis *Tourn.* Saint-foin.

Legume sessile, of one indehiscent joint, compressed, coriaceous, prickly, crested, or winged.— Named from ονος, an *ass*, and βρυχω, to bray; the smell supposed to excite braying.

1. O. *satíva* Lam. (*common Saint-foin*); leaves pinnated nearly glabrous, legumes toothed at the margin and ribs, wings of the corolla not longer than the calyx, stem elongated. *Sm. Ed. Cat.* p. 9. Hedysarum Onobrychis *L.*: *E. Bot.* t. 96.

Dry chalky hills and open downs, in various parts of England. *Fl.* June, July. ♃. — A plant cultivated to great advantage in dry, and especially chalky, soils.

Tribe III. Vicieæ.

Stamens diadelphous (9 *and* 1). *Legume continuous. Cotyledons thick, farinaceous. Leaves abruptly pinnate, with the common petiole ending in a tendril or bristle, and not articulated upon the stem.* (Gen. 16—19.)

16. VÍCIA *Linn.* Vetch.

Style with a tuft of hair beneath the *stigma.* Climbing plants. Leaves *with tendrils.* — Name originally derived, according to Théis, from *Gwig,* Celtic; *Wicken* in German; *βικιον* in Greek; *Vesce* in French; in English, Vetch.

* *Peduncles elongated, many-flowered.*

1. V. *sylvática* L. (*Wood Vetch*); peduncles many-flowered longer than the leaves, leaflets elliptico-oblong mucronate, stipules lunate deeply toothed at their base. *E. Bot.* t. 79; *Ed. Cat.* p. 15.

Bushy places in mountainous countries, in Scotland, the north and north-west of England, Wales, and Ireland. It has been found near Newmarket and in Oxfordshire; and between Lyminge and Eltham, Kent. *Fl.* July, Aug. ♃. —*Stem* 3—6 feet high, climbing by means of its branching tendrils. *Leaflets* 6—8 or 10 pairs. *Flowers* very beautiful, numerous, white, streaked with bluish veins.

2. V. *Crácca* L. (*tufted Vetch*); peduncles many-flowered longer than the leaves, flowers imbricated, leaflets lanceolate slightly hairy, stipules half-arrow-shaped nearly entire. *E. Bot.* t. 1168; *Ed. Cat.* p. 15.

Bushy places. *Fl.* July, Aug. ♃. — 2—3 feet high. *Flowers* numerous, crowded, drooping and imbricated, of a fine bluish purple.

** *Flowers axillary, mostly subsessile.*

3. V. *sativa* L. (*common Vetch*); flowers mostly in pairs nearly sessile, leaflets elliptic-oblong the lower ones retuse, stipules toothed impressed with a more or less evident dark spot, seeds smooth. *E. Bot.* t. 234; *Ed. Cat.* p. 15.

Cultivated ground, frequent. *Fl.* June. ☉. — 1 foot or more high. *Leaflets* variable in width and in number, 2—6 pairs or more on a petiole. *Flowers* large, purple and blue, or red.

4. V. *angustifólia* Sibth. (*narrow-leaved crimson Vetch*); flowers mostly solitary nearly sessile, leaflets linear lowermost ones inversely heart-shaped, stipules toothed with a pale depression beneath, seeds smooth. *Hook. in E. Bot. Suppl.* t. 2614. V. Bobartii *Forst. in E. Bot. Suppl.* t. 2708. V. sativa *β.* and *γ.*, *Fl. Brit.* p. 770; *Ed. Cat.* p. 15.

Dry pastures in a sandy or gravelly soil, in many places. *Fl.* June. ☉. — Too nearly allied, I fear, to the last species.

5. V. *lathyroídes* L. (*Spring Vetch*); flowers sessile solitary, legumes glabrous, leaves generally in 3 pairs lower ones retuse, stipules entire not impressed with a dark spot, seeds "cubic" tubercled. *E. Bot.* t. 30; *Ed. Cat.* p. 15.

Road-sides and dry pastures, not unfrequent. *Fl.* April, May. ☉.— Much resembling a starved state of *V. sativa,* or especially *V. angustif.*: from both of which it may be known by its small size, 3—5 inches high;

smaller, more purple *flower*, scarcely so large as the *leaflets*, with a less reflexed *vexillum*, and by the rough or dotted *seeds*. Here, too, the *leaflets* are fewer on a petiole, the *tendril* is simple, the *stem* procumbent.

6. V. *lútea* L. (*rough-podded yellow Vetch*); flowers sessile solitary, standard glabrous, legumes reflexed hairy, stems diffuse, stipules coloured. *E. Bot.* t. 481; *Ed. Cat.* p. 15.

Rocky or stony ground, especially near the sea. Suffolk, Sussex. On Glastonbury Tor-hill. Mearnshire; between Montrose and Arbroath; and hills at Queensferry, *G. Don:* at which latter place *Dr. Graham* finds it annually and in great plenty, but confined to one spot. Rocks, Dunure Castle, abundant. *Fl.* June, July. ♃. — *Stems* 6—12 inches high, weak. *Leaflets* elliptical-lanceolate, hairy beneath and at the edges, 6—9 pairs on a petiole. *Flowers* large, yellow. *Legumes* compressed.

7. V. *hýbrida* L. (*hairy-flowered yellow Vetch*); flowers nearly sessile solitary, standard hairy, legumes reflexed hairy, stems ascending, leaflets abrupt, stipules ovate unstained. *E. Bot.* t. 482; *Ed. Cat.* p. 15.

On Glastonbury Tor-hill. Swan Pool, near Lincoln. *Fl.* June, July. ♃. — Similar to the last, but distinguished by its hairy *standard*.

8. V. *lævigáta* Sm. (*smooth-podded Vetch*); flowers solitary nearly sessile, legumes reflexed glabrous, stems ascending, stipules cloven unstained, leaflets bluntish very glabrous. *E. Bot.* t. 483; *Ed. Cat.* p. 15.

On the pebbly shore of Weymouth, Dorsetshire. *Fl.* July, Aug. ♃. — Allied to the two last in its herbage. *Petals* "pale blue or whitish, seldom yellowish, all quite glabrous." *Smith*.

9. V. *sépium* L. (*Bush Vetch*); flowers mostly in fours somewhat stalked, legumes upright glabrous, leaflets ovate obtuse gradually smaller upwards upon the petiole. *E. Bot.* t. 79; *Ed. Cat.* p. 15.

Woods and shady places, frequent. *Fl.* June, July. ♃. — 1—2 feet high. *Leaflets* large.

10. V. *Bithýnica* L. (*rough-podded purple Vetch*); flowers stalked mostly solitary, legumes upright rough, petioles with two pairs of lanceolate leaflets, stipules toothed. *E. Bot.* t. 1842; *Ed. Cat.* p. 15.

Bushy places in gravelly soil, mostly near the sea, but rare. Near Doncaster; in Dorsetshire and Hampshire. Frindsbury, Kent. Near Cardiff: *J. E. Bowman*. *Fl.* July, Aug. ♃. — *Flowers* purple, all but the wings, which are whitish.

17. Érvum *Linn.* Tare.

Stigma capitate, downy all over. — Name derived, according to Théis, from the Celtic *erw*, a *ploughed field*, of which it is the pest.

1. E. *hirsútum* L. (*hairy Tare*); peduncles many-flowered,

legumes hairy 2-seeded, leaflets linear-oblong truncated. *E. Bot.* t. 971. Vicia hirsuta, *Ed. Cat.* p. 15.

Corn-fields and hedges ; too frequent. *Fl.* June. ⊙. — *Stems* 2—3 feet long, weak, straggling and climbing. *Leaflets* numerous. *Flowers* very insignificant, purplish-blue.

2. E. *tetraspérmum* L. (*smooth Tare*); peduncles 2-flowered, legumes glabrous 4-seeded, leaflets linear-oblong obtuse. *E. Bot.* t. 1223. Vicia tetrasperma, *Ed. Cat.* p. 15.

Moist corn-fields, hedges, &c. *Fl.* June. ⊙. — Smaller and slenderer than the last. *Leaflets* fewer.

3. E. *grácile* DC. (*slender Tare*) ; "peduncles 1—4 flowered, aristate at length, twice as long as the leaf, upper leaflets 3—4 pairs linear acute, stipules semi-hastate, teeth of the calyx longer than the tube, legumes linear glabrous 6-seeded." *Koch.* Vicia *Loisel. : Fl. Gall.* p. 460. f. 12; *Ed. Cat.* p. 15.

Cobham, Kent : *Mr. Queckett.* Corn-fields, Isle of Wight : *Dr. Bromfield.* *Fl.* June. ⊙. — Considered by many a *var.* of the preceding.

18. LÁTHYRUS *Linn.* Vetchling and Everlasting-Pea.

Style plane, downy above, broader upwards. *Cal.* with its mouth oblique, its upper segments shortest. — Leaves *with tendrils.* — Name : λαθυρος ; a leguminose plant of Theophrastus.

1. L. *A'phaca* L. (*yellow Vetchling*) ; peduncles single-flowered, tendrils without leaves, stipules very large, foliaceous cordato-sagittate. *E. Bot.* t. 1167 ; *Ed. Cat.* p. 7.

Borders of sandy and gravelly fields, rare. Cambridgeshire, Oxfordshire, Norfolk, and near London. *Fl.* June—Aug. ⊙. — True *leaves*, each consisting of a single pair of *leaflets*, are rare, and only exist on this singular plant in the early germination. *Flowers* yellow.

2. L. *Nissólia* L. (*crimson Vetchling*, or *Grass Vetch*); peduncles mostly single-flowered, leaves simple linear-lanceolate sessile without tendrils, stipules subulate. *E. Bot.* t. 112 ; *Ed. Cat.* p. 7.

Bushy places, and grassy borders of fields, in England. *Fl.* May. ⊙.

3. L. *hirsútus* L. (*rough-podded Vetchling*) ; peduncles 2-flowered, each tendril with a pair of linear-lanceolate leaflets, legumes hairy, seeds rough, stem and petiole winged. *E. Bot.* t. 1255 ; *Ed. Cat.* p. 7.

Cultivated fields, rare ; Essex ; between Bath and Bristol. *Fl.* July. ⊙. — *Flowers* pale, except the *standard*, which is bright crimson.

4. L. *praténsis* L. (*Meadow Vetchling*) ; peduncles 2—8 flowered, tendrils with 2 lanceolate 3-nerved leaflets, stipules arrow-shaped as large as the leaflets. *E. Bot.* t. 670 ; *Ed. Cat.* p. 7.

Moist meadows and pastures, frequent. *Fl.* July, Aug. ♃. — *Stems*

2—3 feet long, climbing. *Flowers* yellow. — Cattle are said to be very fond of this common plant.

5. L. *sylvéstris* L. (*narrow-leaved Everlasting-Pea*); peduncles 4—5-flowered, tendrils with a pair of sword-shaped leaflets, stem winged. *E. Bot.* t. 805; *Ed. Cat.* p. 7.

Thickets and hedges, in the middle and S. of England. N. Wales. Shore near Whitehaven. Salisbury Craigs and coast of Angusshire. Banks of the White Adder, Berwickshire. *Fl.* July, Aug. ♃. — *Stem* 5—6 feet long, broadly winged. *Flowers* large, greenish, with purple veins.

6. L. **latifólius* L. (*broad-leaved Everlasting-Pea*); peduncles many-flowered, tendrils with 2 ovato-elliptical mucronated leaflets, stem winged. *E. Bot.* t. 1108; *Ed. Cat.* p. 7.

Woods, rare; too often the outcast of gardens. Cambridgeshire, Cumberland, Worcestershire, Bedfordshire. Apparently wild in an old quarry, near Stapleton, Gloucestershire. Near Kirkcudbright, Scotland. *Fl.* July, Aug. ♃. — A well known climber, and a great ornament of cottage gardens. Somewhat resembling the last, but with *leaves* a great deal broader, and *flowers* larger and more purple.

7. L. *palústris* L. (*blue Marsh Vetchling*); peduncles 3—6-flowered, tendrils with 2—4 pairs of linear lanceolate acute leaflets, stipules half-arrow-shaped lanceolate, stem winged. *E. Bot.* t. 169; *Ed. Cat.* p. 7.

Boggy meadows and thickets in several parts of England; near London, in Berkshire, Leicestershire, Lancashire, Yorkshire, and, I believe, not unfrequently in Norfolk. Galloway, Scotland. *Fl.* July, Aug. ♃. — *Stem* 2—3 feet high, climbing. *Leaflets* about 2 inches long. *Flowers* bluish-purple.

8. L. *marítimus* Big. (*Sea-side Everlasting-Pea*); peduncles many-flowered shorter than the leaves, tendrils with 3—4 pairs of oval leaflets, stipules as large as the leaflets unequally cordato-hastate with the angles acute, stem angled without wings. *Ed. Cat.* p. 7. Pisum *L.*: *E. Bot.* t. 1046. L. pisiformis, *Br. Fl. ed.* 2. p. 324. (*scarcely of* L.) — α. compact robust, leaflets obovato-elliptical obtuse on a recurved common petiole. *Graham.* — β. straggling, slender, leaflets elliptical-lanceolate acute, common petiole straight. *Graham.*

Pebbly beach of Lincolnshire, Suffolk, and the south coast of England. Kerry, Ireland. — β. Shetland: *Mr. Thos. Edmondston; Dr. M'Nab. Fl.* July. ♃. — Upon a careful examination of the *style* of this plant, I feel assured that it ought to be removed to *Lathyrus*, where Bigelow indeed has placed it. The *var.* β., brought by Dr. M'Nab from Shetland in 1837, in its slender straggling habit and narrow leaves comes very near the *L. Altaicus* Ledeb., but that has much smaller stipules and cylindrical legumes. The same state is found in Iceland and Arctic America.

19. Órobus *Linn.* Bitter-vetch.

Style linear, downy above. *Cal.* obtuse at the base, oblique at the mouth, its upper segments deeper and shorter. — Leaves

without tendrils. — Name: ορω, to *strengthen* or *invigorate*, and βους, an *ox*; because yielding food for cattle.

1. O. *tuberósus* L. (*tuberous Orobus*); leaves pinnated with 2—4 pairs of elliptical lanceolate leaflets glaucous beneath, stipules half-arrow-shaped toothed at the base, stem simple erect. *E. Bot.* t. 1153; *Ed. Cat.* p. 9. — β. leaflets linear. O. tenuifolius *Roth: Ed. Cat.* p. 9.

Mountain thickets, frequent; very common in Surrey. — β. Kinnaird; and Moy Woods, Inverness-shire. Near Elgin. Devon, Cornwall, and N. Forest, Hants. Ashdown Forest, Sussex: *Mr. Borrer. Fl.* May, June. ♃. — *Roots* tuberous, eaten by the Highlanders under the name of *Cormeille*, a very small quantity being said to allay and prevent hunger. *Stem* 1 foot high, winged. *Flowers* in long-stalked, axillary *racemes*, purple, veined. *Legume* long, pendulous, cylindrical, black.

2. O. *níger* L. (*black Bitter-vetch*); leaves pinnate with 3—6 ovate or elliptical pairs of leaflets, stipules linear-lanceolate acute, stem branched angular erect. *Hook. in E. Bot. Suppl.* t. 2788; *Ed. Cat.* p. 9.

Shaded rocks, Scotland. Den of Airly, Forfarshire. Craiganain, a rock within 2 miles of Moy House, Inverness-shire. *Fl.* June, July. ♃. — Remarkable for turning black when drying.

3. O. *sylváticus* L. (*Wood Bitter-vetch*); leaves pinnate hairy with 7—10 pairs of ovato-oblong acute leaflets, stipules half-arrow-shaped, stem branched decumbent hairy. *E. Bot.* t. 518; *Ed. Cat.* p. 9.

Rocky and mountainous woods and thickets in the north. *Fl.* May, June. ♃. — *Flowers* purplish-white in unilateral *racemes*.

Ord. XXVI. ROSACEÆ.

Calyx 4—5-lobed, free or adherent with the *ovary*. *Petals* 5, perigynous, equal. *Stamens* perigynous, definite or indefinite, with an incurved æstivation. *Anthers* 2-celled, bursting longitudinally. *Carpels* many, rarely solitary, 1-celled, 1—2- or more seeded, free, or combined with each other and with the calyx. *Styles* simple, often lateral, distinct or combined. *Seeds* ascending or suspended, nearly without *albumen*. *Embryo* straight, with fleshy or foliaceous *cotyledons*.—Herbs, *or* Shrubs, *or* Trees; *with alternate stipulated* leaves. Stipules *one on each side the base of the petiole.* — The pulpy fleshy fruits are esculent; while the plants which produce them are often poisonous from the presence of Prussic acid, with which many of the species abound. Laurel-water is extracted, not from a true Laurel, but from an individual of this Natural Order, *Prunus Lauro-Cerasus*: the *Bitter-Almond* owes its flavour to that acid. Some produce a gum; others are astringent. Roots of *Tormentil* yield a dye; others are febrifuges. The qualities residing in the

species of this Order entitle it to a high rank among British Vegetables.

Tribe I. Amygdaleæ *DC.*

Fruit a solitary drupe, with one or two seeds suspended from the top of their cell. Trees or shrubs with simple leaves and distinct stipules. All the parts abound in prussic acid. Lindl. (Gen. 1.)

1. Prúnus *Linn.* Plum and Cherry.

Cal. inferior, 5-cleft. *Pet.* 5. *Nut* of the *drupe* with slightly prominent seams.—Named προυνη in Greek; according to Theophrastus.

* *Fruit covered with bloom. Young leaves convolute.*

1. P. **doméstica* L. (*wild Plum-tree*); peduncles solitary, or two together, leaves ovato-lanceolate somewhat downy beneath, branches without spines. *E. Bot.* t. 1783; *Ed. Cat.* p. 10.

Twineham, Sussex: *Mr. Borrer. Fl.* May. ♄.—The original stock of our garden *plum*, but probably a *var.* of the following; indeed Mr. Wilson is disposed to unite them with *P. spinosa*, as all forming only one species.

2. P. **insititia* L. (*wild Bullace-tree*); peduncles in pairs, leaves ovato-lanceolate downy beneath, branches ending in a spine. *E. Bot.* t. 841; *Ed. Cat.* p. 10.

Woods and hedges. *Fl.* May. ♄.—A small *tree*, bearing black, globular *fruit*, with a fine bloom.

3. P. *spinósa* L. (*Black-thorn* or *Sloe*); peduncles (mostly) solitary, leaves elliptico-lanceolate somewhat downy beneath, branches very spinous. *E. Bot.* t. 842; *Ed. Cat.* p. 10.

Hedges and coppices, frequent. *Fl.* Apr. May. ♄.—It is difficult in few words to distinguish this species from the last. It is much smaller in all its parts, and the branches are more crooked and spinous. In the *P. insititia*, the *leaves* are rather considerably advanced at the time of the blossoms' appearing; in this, the *flowers* are generally past before the leaves appear. *Fruit* small, very austere; used to adulterate Port wine; as the *leaves* are to mix with tea.

** *Fruit without bloom. Young leaves conduplicate.*

4. P. *Pádus* L. (*Bird-Cherry*); flowers in racemes, leaves deciduous obovate or oval glabrous with two glands at the summit of the footstalk. *E. Bot.* t. 1383. Cerasus *DC.*: *Ed. Cat.* p. 4.

Woods and coppices, frequent; especially in the North. *Fl.* May. ♄.—A small *tree*, with acute, doubly serrated leaves. *Flowers* white. *Drupes* small, black; *nut* rugose.

5. P. *Cérasus* L. (*wild Cherry*); flowers in nearly sessile umbels, leaves ovato-lanceolate somewhat downy beneath. *E. Bot.* t. 706. Cerasus Avium *Mœnch*: *Ed. Cat.* p. 4.

Woods and hedges. *Fl.* May. ♄. — The origin of the garden *Cherry.*[1]

Tribe II. SPIRÆACEÆ *DC.*

Follicles several, invested by the calyx. Seeds 1—6, *suspended from the inner edges of the follicle. Shrubs or herbaceous plants.* (Gen. 2.)

2. SPIRÆA *Linn.* Spiræa, Dropwort, or Meadow-sweet.

Cal. inferior, 5-cleft, persistent. *Pet.* 5. *Follicles* 3—12, 1-celled, 2-valved, with few *seeds.* — Name supposed to be the σπειρεια of Theophrastus.

1. S. **salicifólia* L. (*Willow-leaved Spiræa*); shrubby, leaves elliptico-lanceolate serrated glabrous, racemes terminal compound. *E. Bot.* t. 1468; *Ed. Cat.* p. 13.

Moist woods in several parts of the north of England and Scotland. *Fl.* July. ♄. — A small branching *shrub. Flowers* rose-coloured, in crowded *racemes.*

2. S. *Filipéndula* L. (*common Dropwort*); herbaceous, leaves interruptedly pinnated, all the leaflets uniform deeply cut and serrated, flowers paniculato-cymose. *E. Bot.* t. 284; *Ed. Cat.* p. 13.

Dry pastures, especially in a chalky or gravelly soil; rare in Scotland. *Fl.* July. ♃. — *Root* with rather long *tubers. Stem* a foot high, panicled above. *Leaflets* small, lanceolate, alternate ones not half their size. *Stipules* united, serrated. *Flowers* yellowish-white, tipped with rose-colour.

3. S. *Ulmária* L. (*Meadow-sweet, Queen of the Meadows*); herbaceous, leaves interruptedly pinnated serrated downy beneath, terminal leaflet largest and lobed, flowers in compound (and as it were proliferous) cymes. *E. Bot.* t. 960; *Ed. Cat.* p. 13.

Meadows, and banks of ponds and ditches, frequent. *Fl.* July. ♃. — *Stems* 3—4 feet high, branched upward. *Leaflets* ovate, acuminate, very large, especially the terminal (generally) 3-lobed one; alternate ones minute. *Flowers* yellowish white, numerous, sweet-scented.

Tribe III. DRYADEÆ *Vent.*

Fruit a collection of small dry nuts or little drupes upon a common receptacle within a permanent calyx. Calyx 4—5-*cleft, frequently with little bracts alternating with the segments* (*or* 8—10-*cleft, the segments alternately smaller*). *Mostly herbaceous plants, sometimes shrubs. Leaves usually compound. Stipules adhering to the petiole.* Lindl. (Gen. 3—11.)

[1] Upon this subject, see the corrections and additions to Mr. Leighton's excellent *Flora of Shropshire*, p. 523. *et seq.*, where he divides our *Prunus Cerasus* into two species, *C. avium* (Mœnch) and *C. austera* (Leighton).

3. Dryas *Linn.* Dryas.

Cal. 8—10-cleft, its segments equal. *Pet.* 5—8. *Pericarps* with long feathery *awns*. — Named δρυς, the *oak*, from a distant similarity between their leaves.

1. D. *octopétala* L. (*white Dryas, Mountain Avens*); petals 8, leaves simple serrated. *E. Bot.* t. 451; *Ed. Cat.* p. 5.

Frequent in alpine parts of England, Scotland, and Ireland, especially on limestone: north coast of Sutherland, abundant. *Fl.* June. ♃. — *Stem* short, procumbent. *Leaves* ovato-elliptical, white and downy beneath, petioled. *Flowers* large, white.

4. Géum *Linn.* Avens.

Cal. 10-cleft, alternate segments minute. *Pet.* 5. *Pericarps* with long geniculated *awns*. *Receptacle* elongated. — Named from γευω, *to yield an agreeable flavour*. The roots of *G. urbanum* are aromatic.

1. G. *urbànum* L. (*common Avens, Herb Bennet*); flowers erect, cauline leaves ternate, radical ones lyrato-pinnate. *E. Bot.* t. 1400; *Ed. Cat.* p. 6.

Woods and hedges, frequent. *Fl.* June. ♃. — 1—2 feet high. *Root-leaves* on long foot-stalks. *Flowers* small, yellow. *Petals* patent.

2. G. *rivále L.* (*Water Avens*); flowers drooping, awns feathery, cauline leaves ternate, radical ones interruptedly pinnate and lyrate. *E. Bot.* t. 106; *Ed. Cat.* p. 6.

Marshes and wet moory grounds, frequent; sometimes very alpine. *Fl.* June, July. ♃. — A shorter, but stouter plant than the last. *Flowers* much larger, with erect purplish *calyces* and erect dull purplish-orange coloured *petals*, broadly obcordate, clawed. *Head* of *fruit* pedicellate. A *var.* is not uncommon which seems hybrid. Mr. J. Wilson finds it with semi-double flowers in Ayrshire.

5. Rúbus *Linn.* Bramble.[1]

Cal. 5-cleft. *Pet.* 5. *Fruit* superior, of several single-seeded juicy *drupes*, placed upon a protuberant spongy *receptacle*. — Name of uncertain origin; perhaps from the Latin *ruber*, or the Celtic, *rub*, red.

[1] For the characters of the species of *Rubus* (with the exception of 12, 13) I am indebted to Mr. Borrer, whose copious observations will be found in the third edition of the *British Flora* p. 245, &c. This able botanist distinguishes 10 species of the fruticose or Bramble tribe. No less than 48 supposed species are described and figured in the elaborate *Rubi Germanici* of Weihe and Esenbeck, nearly all of which are probably found in Britain. Dr. Lindley reckons 18 kinds; but his remarks on the dubious character of these plants deserve to be quoted, as they are the words of one who has made this genus, and the whole family to which it belongs, the object of his peculiar study. "I am bound to declare," he says (*Syn. of Br. Fl.*, p. 91.), "that I can come to no other conclusion than that with which I first started, namely, that we have to choose between considering *R. suberectus, fruticosus, corylifolius*, and *cæsius*, as the only genuine British species, or adopting in a

* *Leaves pinnate.*

1. R. *idæus* L. (*Raspberry*); leaves pinnate with 5 or 3 leaflets white and very downy beneath, footstalks channeled, stems nearly erect downy prickly, flowers drooping, petals as short as the calyx. *E. Bot.* t. 2443; *E. Fl.* v. ii. p. 407; *Ed. Cat.* p. 11.

Woods, especially in the north. *Fl.* May, June. ♄. — *Stems* woody. *Leaflets* somewhat cut and serrated. *Fruit* scarlet in a wild state.

** *Leaves digitate or pedate.*

1. *Stem (mostly) biennial, woody.*

a. *Stem nearly erect, not rooting.*

2. R. *suberéctus* And. (*upright Bramble*); stem nearly erect, not rooting obsoletely angular, prickles uniform few small, leaves digitate quinate, leaflets flexible, lower pair sessile or nearly so, panicle nearly simple. *And. in Tr. of Linn. Soc.* v. xi. p. 218. t. 16; *E. Bot.* t. 2572; *E. Fl.* v. ii. p. 406; *Ed. Cat.* p. 11.

Somewhat boggy heaths, sides of streams, &c. chiefly in mountainous districts in the north. Near Tonbridge Wells. By the large bog near Stokes Bay, Hampshire. *Fl.* June—Aug. ♄.

3. R. *plicátus* W. et N. (*plaited-leaved Bramble*); stem not rooting nearly erect obsoletely angular smooth with small somewhat curved uniform prickles, leaves digitate of 5 stalked cordato-ovate pointed plicate leaflets paler green beneath, panicle prickly nearly simple corymbose, calyx slightly reflexed. *Borr. in E. Bot. Suppl.* t. 2714; *Ed. Cat.* p. 11. R. suberectus β. *Borr. in Hook. Br. Fl.* ed. 3. p. 246. R. nitidus *Sm.: E. Fl.* v. ii. p. 404.

Forest districts of Sussex, in heathy and somewhat boggy places, chiefly on the banks of streams, not rare: *Mr. Borrer. Fl.* June—Aug. ♄.

b. *Stem arched or prostrate, rooting.*

α. *Prickles nearly uniform, confined to the angles of the stem.*

4. R. *carpinifólius* W. et N. (*Hornbeam-leaved Bramble*); stem decumbent or arched obsoletely angular and furrowed hairy, prickles uniform deflexed curved, leaves digitate of 5 stalked ovate acuminate plicate leaflets pale beneath, panicle

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great measure the characters of the learned German botanists above mentioned, who have so much distinguished themselves in the elaboration of the genus. So clear is my opinion upon this point, that, if it had been possible to prove the four species to which I have alluded to be themselves physiologically distinct, I should at once have reduced all the others to their original places; but as it is in the highest degree uncertain whether *R. fruticosus*, *corylifolius* and *cæsius* are not as much varieties of each other, as those it would be necessary to reject, I have thought it better to steer a middle course, until some proof shall have been obtained either one way or the other."

compact hairy, branches ascending corymbose, calyx spreading. *W. and N.* t. 13; *Borrer in E. Bot. Suppl.* t. 2664; *Ed. Cat.* p. 11.

Hedges, &c., Sussex, Cheshire, Lancashire; N. Wales: *Mr. W. Wilson.* Sussex. *Fl.* July, Aug. ♄.

5. R. *rhamnifólius* W. et N. (*Buckthorn-leaved Bramble*); stem arched obsoletely angular and furrowed nearly naked, prickles uniform straightish (horizontal or deflexed), leaves digitate of 5 stalked roundish acuminate coriaceous leaflets paler beneath, panicle repeatedly divided diffuse somewhat downy. *W. and N.* t. 6; *E. Fl.* v. ii. p. 401; *E. Bot. Suppl.* t. 2604; *Lindl. Syn.* p. 92. R. cordifolius *W. and N.* t. 5; *Lindl. Syn.* p. 92; *Ed. Cat.* p. 11.

Common in hedges, thickets, and woods, at least in the S. of England. *Fl.* July, Aug. ♄.

6. R. *fruticósus* L. (*common Bramble* or *Blackberry*); stem arched angular furrowed mostly minutely hairy, prickles uniform straightish (horizontal or deflexed), leaves digitate 5 stalked obovate coriaceous leaflets decurved at the edges, their under side and the elongated panicle white with close down. *E. Bot.* t. 715; *E. Fl.* v. ii. p. 399; *Ed. Cat.* p. 11. R. discolor *W. and N.* t. 20; *Lindl. Syn.* p. 93. R. abruptus *Lindl. Syn.* p. 92.

Extremely common in thickets and hedges in the more open districts. *Fl.* July, Aug. ♄.

7. R. *leucóstachys* Sm. (*long-clustered Bramble*); stem arched obsoletely angular and furrowed hairy, prickles uniform straightish (horizontal or deflexed), leaves digitate of 5-stalked roundish flat coriaceous leaflets paler or white beneath, panicle elongated shaggy or downy. *E. Fl.* v. ii. p. 403; *Lindl. Syn.* p. 93; *Borrer in E. Bot. Suppl.* t. 2631; *Ed. Cat.* p. 11. — β. stem less shaggy, prickles very large.

Woods, thickets, hedges. Hampshire and Berkshire: *Mr. Bicheno.* — β. Essex: *Mr. Forster.* Sussex. *Fl.* July, Aug. ♄.

8. R. *macrophýllus* W. et N. (*large-leaved Bramble*); stem somewhat angular and furrowed, prickles uniform few small, leaves digitate of 3 or 5 stalked elliptical or ovate flexible leaflets, panicle repeatedly divided somewhat corymbose. *W. and N.* t. 12; *Borrer in E. Bot. Suppl.* t. 2625; *Ed. Cat.* p. 11.

Hedges, thickets, woods. Sussex. *Fl.* July, Aug. ♄.

β. *Prickles various, not confined to the angles of the stem.*

9. R. *Koéhleri* W. et N. (*Koehler's Bramble*); stem decurved somewhat angular and furrowed hairy glandular setose, prickles numerous unequal curved and straight, leaves digitate of 5-stalked ovate or elliptical leaflets, panicle much divided somewhat corymbose. *W. and N.* t. 25; *Lindl. Syn.* p. 94;

E. Bot. Suppl. t. 2605; *Ed. Cat.* p. 11. R. glandulosus, *E. Fl.* v. ii. p. 403. (*excl. syn. of Bellardi, and perhaps the others.*) —β. R. fusco-ater *W. and N.* t. 26; *Lindl.* — γ. R. pallidus *W. and N.* t. 29; *Lindl.* R. affinis, *E. Fl.* v. ii. p. 405 (*excl. syn.*); *Ed. Cat.* p. 11.

Woods, thickets, hedges. *Fl.* July, Aug. ♄.

10. R. *corylifólius* Sm. (*Hasel-leaved Bramble*); stem decurved roundish, prickles straight scattered somewhat unequal, but not passing insensibly into setæ, leaves digitate of 5 ovate leaflets, the outermost sessile and lapping over the others, calyx of the fruit spreading or reflexed. *E. Bot.* t. 827; *E. Fl.* v. ii. p. 408; *Ed. Cat.* p. 11.

Hedges and thickets. *Fl.* July, Aug. ♄.

11. R *cæsius* L. (*Dewberry*); stem prostrate glaucous round or nearly so, prickles straight unequal passing insensibly into setæ, the length of the largest rarely equalling the diameter of the stem, leaves digitate of 3 or more rarely 5 ovate leaflets the outermost sessile, calyx embracing the fruit. *E. Bot.* t. 826; *E. Fl.* v. ii. p. 409; *W. and N.* t. 46, *A. B. and C.*; *Ed. Cat.* p. 11. — β. stem stronger obsoletely angular, leaflets generally 5. *R.* dumetorum *W. and N.* t. 45. *A.; Ed. Cat.* p. 11.

Thickets, hedge-banks, and borders of fields. *Fl.* June, July. ♄.

2. *Stem herbaceous, or nearly so.*

12. R. *saxátilis* L. (*Stone Bramble*); leaflets 3 slightly downy, runners creeping herbaceous, panicle of few flowers. *E. Bot.* t. 2233; *Ed. Cat.* p. 11.

Stony mountainous places, especially in the north. *Fl.* June. ♃. — Erect, slender, 8—10 inches high, with a few weak straight *prickles* on the *stem*. *Leaves* 2—3; *leaflets* ovate. *Petals* minute, narrow, greenish-yellow. *Fruit* of very few, red, (comparatively) large, clustered *drupes*.

13. R. **árcticus* L. (*arctic Bramble*); leaflets 3 glabrous obtusely serrated, runners none, stem without prickles bearing (mostly) 1 flower, petals roundish notched. *E. Bot.* t. 1585; *Ed. Cat.* p. 11.

Rocky mountainous parts of the Isle of Mull, and on Ben-y-glo; — but we have searched these spots in vain for the plant. *Fl.* June. ♃. — *Stems* 4—6 inches high, slender, having 3—4 *leaves*. *Flowers* of a deep rose-colour, large. *Fruit* purplish-red, highly prized by the Swedes.

*** *Leaves simple.*

14. R. *Chamæmórus* L. (*Cloudberry*); dicœcious, leaves lobed, stem without prickles herbaceous single-flowered. *E. Bot.* t. 716; *Ed. Cat.* p. 11.

Alpine moors, north of England, Wales, Scotland, and Ireland. *Fl.* June. ♃. — Erect, 8—10 inches high. *Flowers* large, white. *Fruit* large, orange-red, of an agreeable flavour.

6. Fragária *Linn.* Strawberry.

Cal. 10-cleft, segments alternately smaller. *Pet.* 5. *Fruit* consisting of many minute *nuts*, placed upon a large fleshy deciduous *receptacle.* — Named from *fragrans, odorous;* on account of its fragrant smell.

1. F. *vésca* L. (*Wood Strawberry*); calyx of the fruit reflexed, hairs of the peduncles widely spreading, those of the pedicels close-pressed silky. *E. Bot.* t. 1524; *Ed. Cat.* p. 5. — *β.* atrovirens *Lindl. in E. Bot. Suppl.* t. 2742.

Woods and thickets, frequent. *Fl.* May—July. ♃.

2. F. * *elátior* Ehrh. (*Hautboy Strawberry*); calyx of the fruit reflexed, hairs of the peduncles and pedicels widely spreading, somewhat deflexed. *Sm. E. Bot.* t. 2197; *Ed. Cat.* p. 5. F. moschata *Duchêsne, Lind.*

Groves and hedges, in several places. *Fl.* June—Sept. ♃.

7. Cómarum *Linn.* Marsh Cinque-foil.

Cal. 10- (or more) cleft, segments alternately smaller. *Pet.* 5 (or more) shorter than the calyx. *Pericarps* inserted on a large spongy permanent *receptacle.* — Named from κομαρος, a term applied by Theophrastus to some plants of the *Arbutus* tribe.

1. C. *palústre* L. (*purple Marsh Cinque-foil*). *E. Bot.* t. 172. Potentilla Comarum *Nestl.: Ed. Cat.* p. 10.

Marshes and peat-bogs, frequent. *Fl.* July. ♃. — *Stems* ascending. *Leaves* petioled, with 7 lanceolate deeply serrated *leaflets*, upper ones quinate or ternate, sessile with a pair of ovate *stipules*. *Flower-stalk* branched. *Flowers* of a deep dingy purple.

8. Potentílla *Linn.* Cinque-foil.

Cal. 10-cleft, segments alternately smaller. *Pet.* 5. *Fruit* consisting of numerous minute *nuts* placed upon a small dry *receptacle.* — Named from *potens, powerful*, from the medicinal properties attributed to some of the species.

* *Leaves pinnate.*

1. P. *fruticósa* L. (*shrubby Cinque-foil*); leaves pinnate, leaflets (generally 5) oblongo-lanceolate entire, stem shrubby. *E. Bot.* t. 88; *Ed. Cat.* p. 10.

Rare: rocky and bushy places, in Middleton-Teesdale, Yorkshire. Rock-forest, Clare, Ireland. *Fl.* June. ♄.

2. P. *anserína* L. (*Silver-weed*); leaves interruptedly pinnate serrated silky especially beneath, peduncles axillary single-flowered, stem creeping. *E. Bot.* t. 861; *Ed. Cat.* p. 10.

Moist meadows and road-sides, frequent. *Fl.* June, July. ♃. — Varying much in the degree of silkiness; sometimes silky and white on both sides. *Flowers* large, yellow. *Leaflets* lanceolate.

3. P. *rupéstris* L. (*Strawberry-flowered Cinque-foil*); stem erect dichotomous, leaves pinnate, leaflets cuneato-ovate serrated hairy, of the root-leaves about 5, of the cauline 3. *E. Bot.* t. 2058; *Ed. Cat.* p. 10.

Very rare, on Craig Breidhin, Montgomeryshire. *Fl.* June. ♃.— *Flowers* large, white.

** *Leaves digitate.*

4. P. *argéntea* L. (*hoary Cinque-foil*); leaves quinate, leaflets cuneiform cut white and downy beneath, their margins revolute, stem decumbent. *E. Bot.* t. 89; *Ed. Cat.* p. 10.

Pastures and road-sides, especially in a gravelly soil. *Fl.* June. ♃. — *Flowers* terminal, small, yellow, subcorymbose.

5. P. *vérna* L. (*Spring Cinque-foil*); root-leaves quinate, leaflets obovate (green on both sides) sharply serrated upwards, hairy beneath and at the edge, petals obcordate longer than the calyx, stem decumbent. *E. Bot.* t. 37; *Ed. Cat.* p. 10.

Dry pastures, Suffolk, Cambridgeshire, near Bristol, and in the north of England; Wales, and Scotland, especially about Edinburgh. Breadalbane mountains. *Fl.* May, June. ♃.—A small, woody, procumbent plant, 3—5 inches in length. *Flowers* at the end of weak leafy branches.

6. P. *alpéstris* Hal. fil. (*orange alpine Cinque-foil*); "radical leaves of five wedge-shaped somewhat hairy leaflets deeply cut in the upper half, upper stipules ovate, petals heart-shaped, stem ascending." *E. Fl.* v. ii. p. 418; *Ed. Cat.* p. 10. P. aurea, *E. Bot.* t. 561 (not *Linn.*). P. Salisburgensis, *Jacq. Ic. Rar.* t. 490. P. verna *var. Wahl.*

Mountains of the north of England; Wales. Breadalbane and Clova mountains of Scotland. *Fl.* June, July. ♃.— With this I am very familiar, having gathered it for a succession of years on the Scottish mountains, and I have endeavoured to detect some solid character by which it might be distinguished from *P. verna*, but in vain. The extreme *vars.*, it is true, do appear distinct, but they insensibly pass into each other; an opinion in which I am happy to be supported by such authority as Mr. W. Wilson, who finds at Llandudno, a little above high-water mark, specimens of *verna*, which cannot be discriminated from *alpestris*. If retained as a species, surely the name *Salisburgensis* should be preferred to the much more recent one of the younger Haller.

7. P. *opáca* L. (*Saw-leaved hairy Cinque-foil*); radical leaves of seven hairy linear wedge-shaped leaflets deeply serrated throughout, stem-leaves ternate, mostly opposite, stems recumbent. *E. Bot.* t. 2449; *Ed. Cat.* p. 10. P. intermedia, *Nestl. Pot.* t. 8.

Hills of Clova and Braes of Balquidder, Scotland: *G. Don. Fl.* June. ♃.— I am indebted for the only specimen I have ever seen of this to the kindness of Mr. D. Don. The *leaflets* are coarsely serrated to the base, and in this respect, as well as in its stouter habit, it differs from the two preceding species. Mr. Borrer has pointed out to me the synonyme of Dr. Nestler.

8. P. * *álba* L. (*white Cinque-foil*); stems filiform procumbent, root-leaves quinate, upper ones ternate, leaflets oblong with converging serratures silky beneath. *E. Bot.* t. 1384; *Ed. Cat.* p. 10.

Wales (?): *Mr. Haviland (in Huds.).* *Fl.* June, July. ♃. — *Flowers* white.

9. P. *réptans* L. (*common creeping Cinque-foil*); stem filiform creeping, leaves quinate, leaflets obovato-cuneiform serrated, peduncles axillary single-flowered longer than the leaf. *E. Bot.* t. 862; *Ed. Cat.* p. 10.

Meadows, pastures, and way-sides. *Fl.* June—Aug. ♃. — *Stems* taking root at the joints. *Flowers* yellow.

*** *Leaves ternate.*

* 10. P. *tridentáta* Soland. (*three-toothed Cinque-foil*); leaves ternate, leaflets oblongo-cuneiform three-toothed at the extremity, glabrous above hairy beneath, petals oval longer than the calyx, stem ascending. *E. Bot.* t. 2389; *Ed. Cat.* p. 10.

On Werron hill, Clova: *G. Don.* *Fl.* May, June. ♃. — *Flowers* white.

11. P. *Fragariástrum* Ehrh. (*Strawberry-leaved Cinque-foil*); leaves ternate, leaflets obovate deeply serrated silky on both sides (especially beneath), petals obcordate as long as the calyx, stems procumbent. *Ed. Cat.* p. 10. P. Fragaria *Poir.* Fragaria sterilis *L.*: *E. Bot.* t. 1785.

Woods, banks, and dry pastures, frequent. *Fl.* March, April. ♃. — *Flowers* white.

9. Tormentílla *Linn.* Tormentil.

Cal. 8-cleft, segments alternately smaller. *Pet.* 4. *Fruit* consisting of numerous minute *nuts*, placed upon a small dry *receptacle.* — Named from *tormina*, the *dysentery*, in the cure of which it was employed on account of its astringent qualities.

1. T. *officinális* Sm. (*common Tormentil*); leaves ternate all sessile, leaflets lanceolate inciso-serrate, stem ascending dichotomous. *E. Bot.* t. 863. Potentilla Tormentilla *Sibth.*: *Ed. Cat.* p. 10.

Moors and heathy places, frequent. *Fl.* June, July. ♃. — *Root* large and woody, used medicinally, and by the Laplanders for staining leather of a red colour. *Peduncles* axillary and terminal.

2. T. *réptans* (*trailing Tormentil*); leaves ternate and quinate on footstalks obovato-cuneiform inciso-dentate, stem prostrate. *E. Bot.* t. 864. P. Tormentilla β. nemoralis *Nestl.*: *Ed. Cat.* p. 10; *Lehm. Pot.* t. 13 (*excellent*).

Hedge-banks, borders of fields and waste places. *Fl.* June, July. ♃. — This, as well as the last, varies with 5 *petals*, when it becomes difficult to be distinguished from *Potentilla reptans*, and many botanists are of opinion that the two plants are identical, their extremes being represented in *E. Bot.* Rarely is *Potentilla reptans* found so much creeping

as in *E. Bot.* t. 882; nor *Torm. reptans* so upright, or so decidedly panicled as in *E. Bot.* t. 864. — I am often at a loss to discriminate between the two plants; and while Mr. Wilson finds them undistinguishable, Mr. Forster and Nestler think them quite distinct.

10. Sibbáldia *Linn.* Sibbaldia.

Cal. in 10 alternately large and small segments. *Pet. 5*, inserted on the calyx. *Capsules 5*, indehiscent, in the bottom of the calyx, 1-seeded. (The number of stamens is very liable to vary, and the capsules are sometimes 10.) — Name given in honour of *Robert Sibbald*, who wrote on the Nat. History of Scotland about the latter end of the 17th century, and who published a figure of our Scottish species of this genus.

1. S. *procúmbens* L. (*procumbent Sibbaldia*); leaves ternate, leaflets wedge-shaped tridentate. *E. Bot.* t. 175; *Ed. Cat.* p. 13.

Near, and upon, the summits of the Highland mountains of Scotland, abundant. *Fl.* July. ♃. — A small, glaucous, slightly hairy plant, woody at the base and roots. *Petals* small, yellow, sometimes wanting. *Stam.* 5—7. *Pistils* 5—8 or 10. — Nearly allied to *Potentilla*, as Mr. W. Wilson well observes.

11. Agrimónia *Linn.* Agrimony.

Cal. turbinate, covered with hooked bristles, 5-cleft, inferior. *Pet. 5*, inserted upon the calyx. *Stam.* 7—20. *Fruit* of 2 small, indehiscent *capsules* invested by the hardened calyx. — Name corrupted from *Argemone*, given by the Greeks to a plant supposed to cure the cataract in the eye, called αργημα.

1. A. *Eupatória* L. (*common Agrimony*); cauline leaves interruptedly pinnate, terminal leaflet on a footstalk. *E. Bot.* t. 1335; *Ed. Cat.* p. 1.

Borders of fields, waste places, and road-sides. *Fl.* June, July. ♃. — 2 ft. or more high. *Leaflets* deeply serrated; intermediate smaller ones 3—5-cleft. *Flowers* yellow, in a long simple or branched *spike*, with a 3-cleft *bractea* at their bases.

Tribe IV. Sanguisorbeæ *Juss.*

Nuts 1 *or* 2, *enclosed within the dry tube of the calyx which is contracted at the orifice. Calyx* 3- *or* 5-*cleft, with a valvate æstivation. Petals* 0. — *Herbs or shrubs. Leaves often compound. Flowers minute.* Lindl. (Gen. 12—14.)

12. Alchemílla *Linn.* Lady's Mantle.[1]

Perianth inferior, 8-cleft, the 4 alternate and outer segments the smallest. *Fruit* 1- or 2-seeded, surrounded by the persistent perianth. — Named from the Arabic *àlkêmelyeh*, *alchemy*, from its pretended alchemical virtues.

[1] Mantle of *our Lady* (the *Virgin Mary*); therefore not "*Ladies' mantle*," as written by many authors.

1. A. *vulgáris* L. (*common Lady's Mantle*); leaves plaited many-lobed serrated. *E. Bot.* t. 597; *Ed. Cat.* p. 1.—β. *minor;* leaves very pubescent. A. hybrida *Pers.*

Alpine pastures abundant. *Fl.* June, July. ♃. — One foot high, or more. *Radical leaves* large, on long footstalks, those of the stem with connate toothed *stipules*, upper ones sessile and very small, *lobes* 6—9. *Flowers* in many rather lax, corymbose, terminal clusters, yellow-green. *Germens* 1—2. *Seeds* 1—2. *Style* lateral.

2. A. *alpína* L. (*alpine Lady's Mantle*); leaves digitate serrated white and satiny beneath. *E. Bot.* t. 244; *Ed. Cat.* p. 1.

Mountains in the north of England, and especially Scotland. On Brandon mountain, Ireland. *Fl.* July, Aug. ♃.— One of the most elegant of our native plants.

3. A. *arvénsis* Sm. (*field Lady's Mantle, or Parsley Piert*); leaves trifid pubescent, lobes deeply cut, flowers sessile axillary. *E. Bot.* t. 1011; *Ed. Cat.* p. 1. A. Aphanes *Willd.* Aphanes arvensis *L.*

Fields and gravelly soils, and on wall-tops, where there is any covering of soil. *Fl.* May—July. ☉. — *Stems* branched, leafy, 4—5 inches long, frequently prostrate. *Leaves* alternate; *stipules* large. *Stam.* varying in number. *Germens* 1 or 2.

(There is an *Alchemilla conjuncta* Bab., Nestl., the "A. argentea" of Don, given in the *E. Cat.* as a British plant, but I possess no further information respecting it.)

13. Sanguisórba *Linn.* Burnet.

Perianth 4-lobed, superior, coloured, with 4 scales or bracteas at the base. *Fruit* 1- or 2-seeded, surrounded by the persistent base only of the perianth. — Named from *sanguis, blood,* and *sorbeo, to take up* or *absorb;* from the supposed vulnerary properties of the plant.

1. S. *officinális* L. (*great Burnet*); glabrous, spikes ovate, stamens about as long as the perianth. *E. Bot.* t. 1312; *Ed. Cat.* p. 12. — β. spikes cylindrical. *Sm. E. Fl.* v. i. p. 219.

Low moist meadows and pastures, on a calcareous soil; chiefly in the north of England; more rare in the lowlands of Scotland. — β. West of Scotland: *G. Don. Fl.* June, July. ♃. — 1—2 ft. high, branching upward. *Leaves* pinnate with a terminal *leaflet;* the rest of the leaflets opposite, all ovate, somewhat cordate at the base, glabrous, strongly serrated, petioled: at the base of each pair of petioles are two small toothed appendages in the larger leaves; these are wanting in some specimens. *Heads* of *flowers* much crowded, dark purple. *Limb* of the *perianth* in 4 ovate segments, its *tube* enveloping the *germen* and having at its base 4 ciliated *scales* or *bracteas* (*calyx* of many authors). *Seed* 1, rarely 2.

14. Potérium *Linn.* Salad-Burnet.

Flowers collected into a head, with 3 (or 4) bracteas at the base of each; upper ones fertile. — *Barren fl. Cal.* of 4 deep

segments. *Cor.* 0. *Stam.* 30—40, with very long flaccid filaments. — *Fertile fl. Cal.* tubular, contracted at the mouth, with 4 deciduous teeth. *Pistils* 2. *Stigmas* tufted. *Pericarps* 2, 1-seeded, invested with the hardened 4-angled tube of the calyx. — Named from *poterium, a drinking cup:* the plant having been used in the preparation of a drink, called in England a *cool-tankard.*

1. P. *Sanguisórba* L. (*common Salad-Burnet*); spines none, stem somewhat angular. *E. Bot.* t. 860; *Ed. Cat.* p. 10.

Dry and most frequently chalky pastures, abundant. Rather rare in Scotland and Ireland. *Fl.* July. ♃.— 1—2 ft. high. *Leaves* pinnated with ovate, serrated *leaflets*. *Flowers* dull purplish. — The leaves taste and smell like cucumber, and are eaten in salad.

Tribe V. Roseæ *DC.*

Carpels (or little nuts) numerous, hairy, terminated with the persistent style, and enclosed within the fleshy (fruit-like) tube of the calyx, which is contracted at the orifice. Sepals 5. Petals 5. Stamens numerous. — Shrubs, with prickly or naked stems. Leaves pinnate. Lindl. (Gen. 15.)

15. Rósa[1] *Linn.* Rose.

Cal. urn-shaped, fleshy, contracted at the orifice, terminating in 5 segments. *Pet.* 5. *Pericarps* (or *carpels*) numerous, bristly, fixed to the inside of the calyx. — Named from the Celtic *Rhos* (from *rhodd*, red); whence also the Greek name for a *rose*, Ῥοδον, was probably derived.

* *Shoots setigerous, prickles scarcely curved.*

1. *Bracteas large.*

1. R. *Dicksóni* Lindl. (*Dickson's Rose*); "shoots setigerous," prickles scattered slender subulate, leaflets oval coarsely and irregularly serrated hoary, sparingly glandulose beneath, calyx-segments long simple, fruit ovato-urceolate. *Lindl. in Trans. of Hort. Soc.*, v. vii. p. 224; *Ed. Cat.* p. 11; *Borr. in E. Bot. Suppl.* t. 2707. R. Dicksoniana *Lindl. Syn.*

Ireland: discovered by *Mr. J. Drummond.* (*Lindley.*) *Fl.* June. ♄.

2. R. * *cinnamómea* L. (*Cinnamon Rose*); shoots setigerous, prickles scattered slender subulate, leaflets lanceolato-oblong simply serrated, downy and glandulose beneath, calyx-segments long simple, fruit small ovate. *E. Bot.* 2388 (*excl. the fruit*); *Woods in Trans. of Linn. Soc.* v. vii. p. 175; *Lindl. Ros.* p. 28; *E. Fl.* v. ii. p. 372; *Linn. Sp. Pl.* ed. 2. p. 703; *Ed. Cat.* p. 11. R. acuminata *Swartz.*

[1] For the characters and synonyms of all the species of this most difficult genus, I am indebted to Mr. Borrer. Copious illustrative remarks, for which there is not room in the present volume, may be found in the second edition of this work, p. 226, &c.

In the wood at Aketon Pasture, near Pontefract, Yorkshire: *Mr. Salisbury*, in *E. Bot.* Mr. Sabine has, however, sought for it there in vain. At Birkhill, Galston, Ayrshire: *Miss Brown. Fl.* May, and irregularly through the summer. ♄.

2. *Bracteas small or wanting.*

3. R. *rubélla* Sm. (*red-fruited dwarf Rose*); stem and branches densely setigerous throughout, prickles few slender nearly straight, leaflets simply serrated naked, their disk eglandulose, fruit oblong or urceolate. *E. Bot.* t. 2521, and fruit t. 2601; *Woods*, l. c. p. 177; *Lindl. Ros.* p. 40; *E. Fl.* v. ii. p. 374; *Ed. Cat.* p. 11. R. alpina θ. *Ser. in DeCand.*

Rare. Sandy sea-coast of Northumberland, sparingly: *Mr. Winch.* Banks of the Dee about Abergeldy: *Anderson. Fl.* May. ♄.

4. R. *spinosíssima* L. (*Burnet-leaved Rose*); prickles crowded unequal mostly straight, intermixed with setæ, leaflets small simply serrated, their disk eglandulose, calyx simple, fruit nearly globular. *E. Bot.* t. 187; *Woods*, l. c. p. 178; *Lindl. Ros.* p. 50; *E. Fl.* v. ii. p. 375; *Ed. Cat.* p. 11. R. pimpinellifolia *Linn., Sabine, Ser. in DeCand. Prod.* — β. *pilosa*; "very dwarf, leaves acute hairy on the under surface." *Lindl. Syn.* p. 100.

Heaths, &c., chiefly on sand and chalk; most common towards the sea. — β. Ireland. *Fl.* May. ♄.

5. R. *Hibérnica* Sm. (*Irish Rose*); shoots and ramuli sparingly setigerous, prickles scattered unequal, larger somewhat falcate, leaflets simply serrated hairy beneath, their disk eglandulose, calyx pinnate, fruit nearly globular. *E. Bot.* t. 2196; *Woods*, l. c. p. 222; *Lindl. Ros.* p. 82; *E. Fl.* v. ii. p. 393; *Ed. Cat.* p. 11.

Counties of Derry and Down, particularly near Belfast harbour: *Mr. Templeton. Fl.* "June—Nov." *Smith.* ♄.

6. R. *Wilsóni* (*Wilson's Rose*); prickles crowded unequal straight intermixed with setæ, leaflets simply serrated hairy, their disk eglandulose, calyx simple, fruit ovato-urceolate. *Ed. Cat.* p. 11.

On a declivity by the Menai, near Bangor: *Mr. W. Wilson.* — "One of the endless varieties of *R. mollis*." *Lindl. Syn.* ed. 2.

7. R. *involúta* Sm. (*prickly unexpanded Rose*); prickles crowded unequal straight intermixed with setæ, leaflets doubly serrated hairy, glandulose beneath, stem dwarfish. *E. Bot.* t. 2068, and fruit t. 2601; *Woods*, l. c. p. 183; *Lindl. Ros.* p. 56; *E. Fl.* v. ii. p. 377; *Ed. Cat.* p. 11.

Hebrides, and Western Highlands of Scotland. Near Meggarnie in Glen Lyon: *Rev. Dr. Stuart.* Isla, Morvern, and elsewhere in the Highlands: *Rev. Dr. Walker.* Isle of Arran: *Mr. G. Don. Fl.* June. ♄.

8. R. *Sabíni* Woods (*Sabine's Rose*); shoots and ramuli setigerous, prickles scattered unequal straight or nearly so, leaflets doubly serrated hairy, glandulose beneath, calyx somewhat pinnate. *Woods*, l. c. p. 188; *Lindl. Ros.* p. 59; *E. Fl.* v. ii. p. 380; *E. Bot. Suppl.* t. 2594; *Ed. Cat.* p. 11.

β. prickles more numerous, leaves very hairy, calyx almost simple. *Lindl. Ros.* p. 59. *R. Doniana* Woods, l. c. p. 185; E. Fl. v. ii. p. 378; E. Bot. Suppl. t. 2601.[1]

γ. larger prickles falcate, calyx almost simple. *R. gracilis* Woods, l. c. p. 186; *E. Fl.* vol. ii. p. 379. *R. villosa*, E. Bot. t. 583 (*fig. only*).[2]

Scotland and N. of England. — β. Sussex, and near Edinburgh. Warwickshire: *Rev. W. T. Bree.* — γ. Near Darlington: *Mr. Robson.* Pooley Bridge, Cumberland, and near Keswick: *Woods.* Between Pooley and Lowther: *Mr. Robertson.* *Fl.* June. ♄.

** *Shoots mostly without setæ.*

1. *Leaves glandulose.*

a. *Prickles uniform or nearly so; setæ none or very few.*

9. R. *villósa* Linn. (*villous Rose*); prickles uniform nearly straight, leaflets doubly serrated downy glandulose, calyx slightly pinnate, root-shoots straight. *Woods*, l. c. p. 189; *E. Fl.* v. ii. p. 381; *Linn. Herb.*; *Ed. Cat.* p. 11. R. mollis, *E. Bot.* t. 2459; *Lindl. Syn.* p. 100. R. mollissima *Willd.* R. heterophylla *Woods*, l. c. p. 195. R. pulchella *Woods*, l. c. p. 196?

N. of England, Scotland, Wales; Ireland: *Mr. J. T. Mackay.* *Fl.* June, July. ♄.

10. R. *tomentósa* Sm. (*downy-leaved Rose*); prickles mostly uniform straight or curved, leaflets doubly serrated downy glandulose, calyx copiously pinnate. *E. Bot.* t. 990; *Woods*, l. c. p. 197; *E. Fl.* v. ii. p. 383; *Lindl. Syn.* p. 100; *Hook. in Fl. Lond. N. Ser.* t. 124; *Ed. Cat.* p. 11; *Pers.*; *DeCand.*; *Ser.*

β. *R. scabriuscula*, Winch Geog. Distr., ed. 2. p. 45; E. Bot. t. 1896. (fig. only?); Woods, l. c. p. 193.

Hedges and thickets, not unfrequent. — β. About Newcastle: *Winch. Fl.* June, July. ♃.

11. R. *inodóra* Fries (*slightly-scented Briar*); prickles uniform uncinate, leaves doubly serrated hairy mostly glandulose beneath, calyx-segments closely pinnate mostly deciduous, ramuli without setæ, fruit elliptical or nearly globular. *Fries "Fl. Holland.;" E. Bot. Suppl.* t. 2610, *ad calcem; Ser. in De Cand.*; *Ed. Cat.* p. 11. R. Borreri *Woods*, l. c. p. 310; *E. Fl.* v. ii. p. 388; *E. Bot. Suppl.* t. 2723. R. dumetorum, *E. Bot.* t. 2579. R. rubiginosa *var.* inodora *Lindl. Ros.* p. 88; *Fl. Lond. N. S.* t. 117; *Wahl.*; *Fries, Nov.* ed. 2. — β. leaves

[1] This is the *R. sylvestris*, &c., Raii. Syn. ed. 3. p. 478, found by Sherard near Kingston-upon-Thames, where it still grows.

[2] The Rose contemplated in the description was *R. pomifera.* See *E. Fl.*

hairy on both sides. *Woods.* — γ. leaves more copiously glandulose, calyx-segments elongated persistent.

Thickets and hedges, chiefly in the S. of England. — β. near Edinburgh and elsewhere. — γ. Glen Goy, Inverness-shire. Near Newcastle: *Mr. Robertson. Fl.* June, July. ♃.

12. R. *micrántha* Sm. (*small-flowered Sweet-Briar*); prickles uniform uncinate, leaflets doubly serrated hairy, glandulose beneath, calyx-segments and pinnæ elongated deciduous, fruit small elliptical and ovate, ramuli sparingly setigerous. *E. Bot.* t. 2490; *Woods*, l. c. p. 209; *E. Fl.* v. ii. p. 387 (*not De Cand.*); *Ed. Cat.* p. 11. R. rubiginosa β. *Lindl. Ros.* p. 87.

Open bushy commons, thickets and hedges, in the S. of England. Abundant on chalk and gravel in some parts of Sussex and Surrey. Essex: *Mr. Forster.* South of Ireland: *Mr. Drummond. Fl.* June, July. ♃.

b. *Prickles various, intermixed with setæ.*

13. R. *rubiginósa* Linn. (*true Sweet-Briar*); prickles numerous, larger uncinate, smaller subulate, leaflets doubly serrated hairy, glandulose beneath, mostly rounded at the base, calyx-segments and pinnæ elongated persistent, primordial fruit pear-shaped. *E. Bot.* t. 991; *E. Fl.* v. ii. p. 385; *Ed. Cat.* p. 11. R. rubiginosa α. *Lindl. Ros.* p. 86; *Hook. Scot.* i. p. 157.; *De Cand.; Wahl.; Fries.* R. Eglanteria *Woods*, l. c. p. 206: *Huds.* R. suavifolia *Lightf.*

Open bushy places, chiefly in the S. of England. Abundant in some places on chalk; more rare in moist hedges. About Edinburgh; and near Passage in Ireland. *Fl.* June, July. ♃.

14. R. *sépium* "Thuil." (*small-leaved Sweet-Briar*); prickles numerous, larger curved, smaller subulate, leaflets small doubly serrated hairy acute at each end, glandulose beneath calyx-segments and pinnæ elongated (fruit ovate?). *Lindl. Syn.* p. 101; *De Cand. Fl. Fr.* ed. 3. v. vi. p. 538; *Borr. in E. Bot. Suppl.* t. 2653; *Ed. Cat.* p. 11.

Near Bridport, Warwickshire: *Rev. W. T. Bree.* Heyford Leys, near Upper Heyford, Oxfordshire: *Mr. Baxter.*

2. *Leaves eglandulose.*

a. *Styles distinct, included or nearly so.*

15. R. *canína* L. (*common Dog-Rose*); prickles uniform hooked, leaves naked or slightly hairy, their disk eglandulose, calyx-segments fully pinnate deciduous, styles not united, shoots assurgent α. δ. ε. *Lindl. Ros.* p. 98 (excl. some syns.); *Hook. Scot.* i. p. 157; *Fries; Ed. Cat.* p. 11.

Thickets, hedges, &c., very common. *Fl.* June, July. ♄. — The British Roses answering to the character given above may be subdivided as follows: —

α. Leaflets naked, carinate; serratures simple. *R. canina* Woods, l. c. p. 223; E. Fl. v. ii. p. 394.

a. Green. *α. Woods. R. canina*, E. Bot. t. 992.
b. Grey. *β. Woods.*

β. sarmentacea. Leaflets naked, carinate; serratures compound. *R. sarmentacea* Woods, l. c. p. 213; E. Bot. Suppl, t. 2595. *R. canina*, Fl. Lond.

a. Green. *β. Woods. R. sarmentacea* Swartz?
b. Grey. *α. Woods. R. glaucophylla* Winch.

γ. surculosa. Leaflets naked, flat; serratures simple. *R. surculosa* Woods, l. c. p. 228. *R. venosa* Swartz? *R. canina β.* E. Fl.

a. Green. *β. Woods.*
b. Grey. *α. Woods.*

δ. dumetorum. Leaflets more or less hairy flat.

a. Hairy on both sides. *R. dumetorum* "Thuil."; Woods, l. c. p. 217; E. Fl. v. ii. p. 392; Borr. in E. Bot. Suppl. t. 2610.
[*b.* Hairy beneath only. *R. collina* Jacq. from the younger Jacquin, I have not seen it British.]

ε. Forsteri. Leaflets more or less hairy not flat. *R. collina* Woods, l. c. p. 219. *R. Forsteri*, E. Fl. v. ii. p. 392; Borr. in E. Bot. Suppl. t. 2611.

a. Concave, green. *γ. Woods. R. campestris* Swartz?
b. Carinate, grey.

1. Hairy beneath only. *β. Woods. R. Forsteri*, E. Bot. Suppl. t. 2611.
2. Hairy on both sides.

16. R. *bractéscens* Woods (*bracteated Dog-Rose*); "calyx-tube globose, prickles hooked, leaflets simply serrated downy beneath, bracteas overtopping the fruit." *Woods*, l. c. p. 216; *E. Fl.* v. ii. p. 391; *Ed. Cat.* p. 11. R. dumetorum, *Lindl. Syn.* p. 102. R. coriifolia *Fries, Nov.* ed. ii. p. 147?

About Ulverston, Lancashire; and a *var.* with nearly smooth stipules and glandulose calyx-segments, at Ambleside, Westmoreland. *Fl.* — ♄.

17. R. *cæsia* Sm. (*glaucous Dog-Rose*); prickles uniform uncinate, leaflets doubly serrated downy, their disk eglandulose, calyx sparingly pinnate, styles not united, shoots assurgent. *E. Bot.* t. 2367; *Woods*, l. c. p. 212; *E. Fl.* v. ii. p. 389; *Lindl. Syn.* p. 103; *Ed. Cat.* p. 11. R. canina *ζ. Hook. Scot.* i. p. 157.

β. incana, prickles strongly uncinate from a much lengthened base; fruit large oblong. *R. tomentosa o. incana* Woods, l. c. p. 203.

Highland valleys of Perthshire and Argyleshire. Northumberland and Durham: *Mr. Robertson.* — *β.* sent from Scotland to Mr. Sabine, by the late *Mr. G. Don. Fl.* June, July. ♄.

b. *Styles united in a column; mostly exserted.*

18. R. *sýstyla* Woods (*close-styled Dog-Rose*); prickles uniform uncinate, leaves simply serrated, their disk eglandulose, calyx-segments sparingly pinnate deciduous, styles united hair-

less, shoots assurgent. *Woods*, l. c. p. 230; *E. Fl.* v. ii. p. 395 (*excl. from both the foreign syns.*); *Lindl. Ros.* p. 111 (*excl. the foreign syns., except* R. dibracteata *DC.: Fl. Fr.* ed. 3. v. vi. p. 537; *Ed. Cat.* p. 11. R. collina, *E. Bot.* t. 1895 (*excl. syn.*)

β. *Woods.* Leaves shining, naked on both sides, except the mid-rib.

γ. leaves glaucescent, naked on both sides, except the mid-rib.

Thickets, hedges, &c., Sussex. Essex, Middlesex: *Mr. Foster.* Berkshire, *Mr. Bicheno.* Kent: *Mr. Woods.* Niddrie, and hills to the N. of Milngavie: *Hopkirk.* Near Cork: *Mr. Drummond.* — β. Henfield, Sussex. I have similar specimens from Fort-Augustus. — γ. Newtimber, Sussex. *Fl.* June, July. ♄.

19. R. *arvénsis* Huds. (*trailing Dog-Rose*); prickles uncinate, those of the ramuli feeble, leaves simply serrated deciduous (glaucescent beneath), their disk eglandulose, calyx-segments sparingly pinnate deciduous, styles united hairless, shoots trailing. *E. Bot.* t. 188; *Woods*, l. c. p. 232; *Lindl. Ros.* p. 112; *E. Fl.* v. ii. p. 397; *Hook. in Fl. Lond. N. S.* t. 123; *Ed. Cat.* p. 11. — β. (*Woods*): glands on the fruit. — γ. shoots flexuose, leaves ovato-lanceolate shining.

Woods, hedges, thickets, &c., common in the S. of England. Rare in the mountainous districts: *Mr. Woods.* Lowlands of Scotland: *Dr. Burgess.* Near Bray, Ireland: *Mr. J. T. Mackay.* — γ. Henfield, and elsewhere in Sussex. *Fl.* June, July, ♄. — *R. arvensis* is distinguished from all the other British species by its trailing habit. Some of the *vars.* so closely resemble the true *Ayrshire rose* (*R. capreolata* Neill and Don), that I know not where to draw the line of separation. Mr. Sabine, however, regards that plant as a deciduous *var.* of *R. sempervirens*, and points out the shining leaves, paler, but without glaucescence, on the under-side, and the hairy stigmas, with some other minute differences, as distinguishing it from *R. arvensis.*

Tribe VI. Pomaceæ *Lindl.*

Fruit a pome, 1—5-*celled; the cells lined with a cartilaginous or bony substance. Seeds* 1 *or more ascending. — Trees or Shrubs. Leaves alternate stipuled, simple or compound. Flowers in terminal cymes, white or pink.* (Gen. 16—19.)

16. Méspilus *Linn.* Medlar.

Cal. segments superior, foliaceous. *Pet.* roundish. *Disk* large, secreting much honey. *Styles* 2—5, glabrous. *Fruit* turbinate, with the upper ends of the cells, which are bony, exposed. *Lindl.* — Named from μεσπιλη, the Greek word for *Medlar.*

1. M. **Germánica* L. (*common Medlar*); leaves lanceolate a little downy, flowers solitary nearly sessile terminal, styles 5. *E. Bot.* t. 1523; *Ed. Cat.* p. 8.

Hedges, in Cheshire and Sussex. Bidborough, Kent: *Mr. Borrer.* Red-hill, Surrey; and, in its wild thorny state, in a hedge, between Reigate and Nutfield: *J. S. Mill, Esq.* Jersey: *Mr. Trevelyan. Fl.* May. ♄.

17. Cratǽgus *Linn.* Hawthorn.

Cal. segments superior, acute. *Pet.* roundish. *Styles* 1—5. *Fruit* oval or round, concealing the upper end of the cells which are bony. *Lindl.*—Named from κρατος, *strength*, in allusion to the extreme hardness of the wood.

1. C. *Oxyacántha* L. (*Hawthorn, White-thorn,* or *May*); spiny, leaves glabrous cut into 3 or 5 deeply serrated segments cuneate at the base, flowers corymbose, style 1 or 2. *Hook. Scot.* i. p. 151; *Ed. Cat.* p. 4. Mespilus *Gært.: E. Bot.* t. 2504. C. monogyna *Jacq.*

Woods and hedges. *Fl.* May, June. ♄.—Variable in the form of its *leaves*, in the downiness of the *cal.*, and in the colour of the *flower* and *fruit*. The latter, usually red, *Mr. J. Wilson* finds of a greenish-orange on some bushes in Ayrshire. The *fruit* or *haws* afford abundant food for small birds during hard winters. Few of our native plants present a more beautiful appearance than a well-grown tree of "Hawthorn hoar," with its massy foliage and innumerable white and fragrant blossoms.

> "From the *White-thorn* the May-flower shed
> Its dewy fragrance round his head."

18. Cotoneáster *Lindl.* Cotoneaster.

Flowers polygamous. *Cal.* turbinate, with 5 short teeth. *Pet.* 5, small, erect. *Stam.* erect, the length of the teeth of the cal. *Fruit* turbinate, with its nuts adhering to the inside of the cal., but not cohering in the centre.—Named from *Cotoneum* (κυδωνιον, Gr.), the *Quince.*

1. C. *vulgáris* Lindl. (*common Cotoneaster*); leaves oval, calyx glabrous, peduncles slightly downy. *Hook. in Fl. Lond.* n.s. t. 211; *E. Bot. Suppl.* t. 2713; *Ed. Cat.* p. 4. Mespilus Cotoneaster *Linn.*

Limestone cliffs at Ormeshead, Caernarvonshire: *Mr. Griffith* (1783) and *Mr. W. Wilson. Fl.* July. ♄.

19. Pýrus *Linn.* Pear, Apple, and Service.

Cal. superior, of 5 segments. *Pet.* 5. *Styles* 2—5. *Fruit* fleshy (a *Pome* or *Apple*), with 5 cartilaginous, 2-seeded *cells.*—Name derived from the Celtic *peren*, a *pear.* In Greek απιος, from *api*, Celtic; whence *apple* in English; *apfel*, German.

1. P. *commúnis* L. (*wild Pear-tree*); leaves simple ovate serrated, peduncles corymbose, fruit turbinate. *E. Bot.* t. 1784; *Ed. Cat.* p. 10.

Woods and hedges, *Fl.* April, May. ♄.—Origin of our *Pear.*

2. P. *Málus* L. (*Crab-Apple*); leaves ovate acute serrated, flowers in a sessile umbel, styles combined below, fruit globose. *E. Bot.* t. 179; *Ed. Cat.* p. 10.

Woods and hedges. *Fl.* May. ♄. — Origin of our *Apple*. *Fruit* austere, of which verjuice is made.

3. P. *torminális* Sm. (*wild Service-tree*); leaves ovate or cordate lobed and serrated, lower lobes spreading, peduncles corymbose. *Ed. Cat.* p. 10. Cratægus *L.*: *E. Bot.* t. 298.

Woods and hedges, chiefly in the middle and south of England. *Fl.* April, May. ♄. — *Flowers* rather large, white. *Fruit* small, greenish-brown, spotted.

4. P. *doméstica* Sm. (*true Service-tree*); leaves pinnated downy beneath, leaflets serrated upwards, flowers panicled, fruit obovate. *E. Bot.* t. 350; *Ed. Cat.* p. 10. Sorbus domestica *L.*

Solitary tree in Wyre Forest, near Bewdley, Worcestershire. *Fl.* May. ♄. — Habit of the following; but differing in its *inflorescence* and the large size of its *fruit*, which resembles a small pear, an inch long.

5. P. *aucupária* Gærtn. (*Quicken-tree*, *Mountain-ash*, or *Rowan-tree*); leaves pinnated glabrous, leaflets serrated, flowers corymbose, fruit (small) globose. *Hook. Scot.* i. p. 151; *Ed. Cat.* p. 10. Sorbus, *E. Bot.* t. 387.

Mountainous woods and hedges, frequent, especially in the Highlands of Scotland,

> "Where clings the *Rowan* to the rock,
> And through the foliage shows his head
> With narrow leaves and berries red."

Fl. May, June. ♄. — The wood is valued for its compactness, and the tree is often planted near houses and villages in the Highlands, to protect them from evil spirits. The *berries* are not unfrequently eaten.

6. P. *A'ria* Sm. (*white Beam-tree*); leaves ovate cut and serrated white and downy beneath, flowers corymbose, fruit globose. *E. Bot.* t. 1858; *Ed. Cat.* p. 10. Cratægus *L.* — β. *pinnatifida*; leaves pinnatifid and even pinnated. P. pinnatifida *Ehrh.*: *E. Bot.* t. 2331; *Ed. Cat.* p. 10. Sorbus hybrida *L.*

Mountainous woods, especially in a chalk or limestone country; England and Scotland. Cunnamara and Killarney, Ireland. β. Isle of Arran, and near Dartford. *Fl.* June. ♄. *Fruit* red.

Ord. XXVII. ONAGRARIÆ.

Calyx-tube adnate with the *ovary* entirely or in part. *Limb* 2- or generally 4-lobed, the lobes valvate in æstivation. *Petals* 2, generally 4, twisted in æstivation, arising from the mouth of the calyx. *Stamens* 4 or 8, inserted into the calyx. *Ovary* of several cells, often crowned by a disk. *Style* filiform. *Stigma*

capitate or 4-lobed. *Fruit* a *berry*, or *capsule*, with 4 cells and many *seeds* which have no *albumen*.—Herbs or Shrubs. Leaves *frequently opposite.*

1. Epilóbium *Linn.* Willow-herb.

* *Flowers irregular. Stamens bent down.*

Cal. superior, 4-partite, segments free, deciduous. *Pet.* 4. *Capsule* elongated, 4-sided, 4-celled, 4-valved, many-seeded. *Seeds* with a tuft of hairs at one extremity. — Named from επι, *upon*, and λοβος, *a pod*: the flower being placed upon the top of the elongated seed-vessel.

1. E. *angustifólium* L. (*Rose-bay Willow-herb*); leaves scattered linear-lanceolate veined glabrous, flowers irregular subspicate, stamens declined. *E. Bot.* t. 1947; *Ed. Cat.* p. 5. — *β. macrocarpum.* E. macrocarpum *Steph. in Ann. of Nat. Hist.* v. 8. p. 170; *Leight. in Ann. of Nat. Hist.* v. 8. p. 246.

Moist banks and margins of woods; rare in England, less so in Scotland. Near Enniskerry, Ireland: *Mr. J. T. Mackay.*—*β.* Leighwood, Somerset: *Mr. G. H. Thwaites.* With *α.* in the Forest of Wyre, Shropshire: *Mr. Jorden. Fl.* July. ♃. — *Stems* 4—6 feet high. Whole plant very handsome.

** *Flowers regular. Stamens erect. Stigmas* 4-*cleft.*

2. E. *hirsútum* L. (*great hairy Willow-herb*); leaves semi-amplexicaul ovato-lanceolate deeply serrated hairy, stem very much branched hairy, root creeping, stigma 4-cleft. *E. Bot.* t. 838; *Ed. Cat.* p. 5.

Sides of ditches, rivers, and lakes, frequent. *Fl.* July. ♃. —Almost equal in size to the last. *Root* perennial, creeping. *Flowers* corymbose, large.

3. E. *parviflórum* Schreb. (*small-flowered hairy Willow-herb*); leaves sessile lanceolate slightly toothed downy on both sides, stem nearly simple very downy, root fibrous, stigma 4-cleft. *E. Bot.* t. 795; *Ed. Cat.* p. 5.

Marshes and banks of lakes and rivers, frequent. *Fl.* July. ♃. — The much smaller size of this species in all its parts, being scarcely more than 1—1½ ft. high, besides the above characters, serves to distinguish it from the preceding, with which it has been confounded.

4. E. *montánum* L. (*broad smooth-leaved Willow-herb*); leaves ovate acute shortly petiolate glabrous all toothed, stem rounded pubescent as well as the fruit, stigma 4-cleft. *E. Bot.* t. 777; *Ed. Cat.* p. 5.

Dry shady banks, walls, roofs of cottages, &c., frequent. *Fl.* July. ♃. — 6 inches to 1 foot high. Much resembling the following; but essentially distinguished by its 4-fid *stigma*. It has, too, more shortly petiolate, deeply toothed *leaves*; and larger *flowers*. *E. lanceolatum* Sebastiani is introduced in the *Ed. Cat.* p. 5, as a species new to Britain; but that name should only be considered a synonyme of *E. montanum*, according to Steudel.

**** Flowers regular. Stamens erect. Stigma undivided.*

5. E. *róseum* Schreb. (*pale smooth-leaved Willow-herb*); leaves ovato-lanceolate stalked finely toothed, stem erect somewhat 2-edged, stigma clavate. *E. Bot.* t. 693; *Ed. Cat.* p. 5.

About London, in Essex and Sussex. Forfarshire. *Fl.* July. ♃.— Distinguishable from *E. montanum* by its clavate entire *stigma*, and from *E. tetragonum* by its broader petiolate *leaves*, and *stem* not distinctly 4-sided.

6. E. *tetragónum* L. (*square-stalked Willow-herb*); leaves lanceolate sessile denticulate, stem with 4 angles nearly glabrous, stigma undivided. *E. Bot.* t. 1948; *Ed. Cat.* p. 5.

Sides of ditches and watery places, common. *Fl.* July. ♃.

7. E. *palústre* L. (*narrow-leaved Marsh Willow-herb*); leaves narrow-lanceolate sessile nearly entire and as well as the rounded erect stem subglabrous, stigma undivided. *E. Bot.* t. 346; *Ed. Cat.* p. 5.

Boggy places and the sides of lakes and ditches. *Fl.* July. ♃.— About a foot high. *Flowers* small.

8. E. *alsinifólium* Vill. (*Chickweed-leaved Willow-herb*); leaves lucid ovato-acuminate nearly sessile glabrous lowermost ones entire, the rest toothed, stem rounded, its upper part and germen slightly pubescent, stigma entire. *E. Bot.* t. 2000; *Ed. Cat.* p. 5.

Sides of alpine rivulets. On the Cheviots. Aber waterfall, N. Wales. Frequent on the Scottish, especially the Highland, mountains. *Fl.* July. ♃.— This has many of the characters, in its *leaves* and *stem*, of *E. montanum*; but the *stigma* is entire, clubbed, and the *leaves* have a flaccid subpellucid appearance, so that the eye readily distinguishes the species. The *germen* is pubescent; but in my specimens the down disappears before the fruit is ripe. Wahlenberg considers it a variety of the following; and I must confess that I have gathered, on the mountains of Clova, specimens that seem intermediate. The more usual forms of the plant do indeed appear to be very different. Let it be observed, that in Wales, where *E. alsinifolium* is found, *E. alpinum* is never seen.

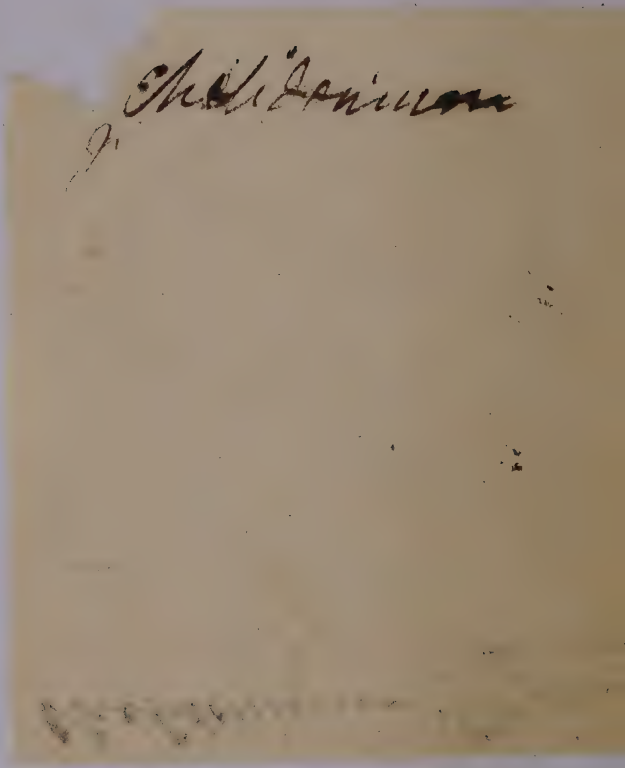
9. E. *alpínum* L. (*alpine Willow-herb*); leaves elliptical glabrous on short footstalks nearly entire, stem nearly glabrous and fruit entirely so, stigma undivided. *E. Bot.* t. 2001; *Ed. Cat.* p. 5.

Wet places near springs, and by the sides of rivulets on all the Highland mountains. *Fl.* July. ♃.— 2—4 inches high. *Root* creeping. *Stem* with two lines of very obscure pubescence, procumbent at the base. *Flowers* seldom more than 1 or 2 from the summit of the stalk, at first gracefully drooping, bright purple-red. *Fruit* erect, often as long as the plant itself.

2. ŒNOTHÉRA *Linn.* Evening-Primrose.

Cal. superior, tubular, with a deeply 4-cleft *limb*; the segments reflexed, more or less combined. *Pet.* 4. *Caps.* 4-

Chelidonium Virgin.



valved, with many naked *seeds*. — Named from *οινος*, *wine*, and *θηρα*, *searching* or *catching*, from the root having caught the perfume of wine.

1. Œ. * *biénnis* L. (*common Evening-Primrose*); leaves ovato-lanceolate toothed, stem somewhat hairy, flowers sessile subspicate, stamens about as long as the corolla, capsules nearly cylindrical 4-toothed. *E. Bot.* t. 1534; *Ed. Cat.* p. 9.

Sandy soils near Liverpool, also in Suffolk and Warwickshire. *Fl.* July—Sept. ♂. — This genus is altogether American. Plant 2—3 feet high. *Stem* roughish. *Flowers* yellow, fragrant, expanding in the evening.

3. Isnárdia *Linn.* Isnardia.

Cal. 4-cleft, superior. *Petals* 4, or wanting. *Stigma* capitate. *Capsule* obovate, 4-angular, 4-valved, 4-celled, many-seeded, crowned with the *calyx*. — Named after *Antoine d'Isnard*, a botanist and professor at Paris, in the beginning of the last century. — As the genus is now defined here, and by De Candolle, it contains many species of *Ludwigia*.

1. I. *palústris* L. (*Marsh Isnardia*); stem procumbent rooting glabrous, leaves opposite ovate acute stalked, flowers axillary solitary sessile apetalous. *E. Fl.* v. iv. *App.* p. 264; *Hook. in E. Bot. Suppl.* t. 2593; *Ed. Cat.* p. 9.

Very rare. In a pool at Buxtead, Sussex: *Mr. Borrer*. Abundant in a bog on Petersfield Heath, Hampshire, discovered by *Miss Rickman* and *J. Barton, Esq.* Jersey: *Mr. Haslam, Mr. Christy* (1837). *Fl.* July. ☉. — A most interesting addition to our British Flora, detected in 1827.[1] It is frequent on the continent of Europe, in North America, and the temperate parts of Asia.

4. Circæa *Linn.* Enchanter's Nightshade.

Cal. 2-leaved, but united into a short tube at the base. *Cor.* of 2 petals. *Caps.* 2-celled; cells 1-seeded. — Named from the enchantress *Circe*, either from the prettiness of its flowers, or, as some say, from its growing in damp, shady places, where plants used for incantations are found.

1. C. *Lutetiána* L. (*common Enchanter's Nightshade*); stem erect pubescent, leaves ovate acuminate toothed opaque longer than the petiole. *E. Bot.* t. 1056; *Ed. Cat.* p. 4.

Woods and coppices in shady situations, common. *Fl.* June, July. ♃. — *Root* creeping. *Stem* 1—1½ foot high. *Leaves* scarcely cordate at the base, upper ones narrow-ovate. *Racemes*, as well as the stems, more or less branched. *Flowers* white or rose-coloured. *Calycine*

[1] Mr. Forster, however, well remarks that "*Anagallis aquatica, flore parvo viridi, caule rubro*, (in a great ditch near the moor at Petersfield, Hampshire; *Mr. Goodyer*,) of Merrett's Pinax, and of Dillenius, in his Indiculus Plant. dubiarum, added to his ed. of Ray's Synopsis," is indubitably this plant. *Borrer*.

leaflets reflexed. *Petals* obcordate, patent. *Germen* very hispid, the hairs hooked at the extremity. The nectary which surrounds the base of the filament is more prominent than in the following species.

2. C. *alpina* L. (*alpine Enchanter's Nightshade*); stem ascending nearly glabrous, leaves cordate toothed shining as long as the petioles. *E. Bot.* t. 1057; *Ed. Cat.* p. 4. — β. *major*; larger and more pubescent. *Sm.*: C. intermedia *Ehrh.*

Woods, coppices and stony places, especially by the sides of lakes in the North of England and Scotland. — β. In similar situations. *Smith. Fl.* July, Aug. ♃. — This comes very near, it must be confessed, to the preceding; but is much smaller, the leaves decidedly cordate, and the *petioles* longer. *Fruit*, which is abundant on *C. Lutetiana*, I have never observed on this plant.

Ord. XXVIII. HALORAGEÆ.

Calyx-tube adnate with the *ovary*; *limb* minute. *Petals* minute, arising from the mouth of the calyx, or wanting. *Stamens* also from the mouth of the calyx, equal in number to its lobes, or double as many, rarely fewer. *Ovary* with 1 or more cells. *Stigmas* as many as there are cells. *Fruit* dry, indehiscent: *cells* 1 or more. *Seed* solitary, pendulous. *Albumen* fleshy. *Embryo* straight. *Radicle* superior. — *Mostly* Herbs, (*the British ones especially*) aquatics. Leaves *various as to insertion. The* stamens *and* pistils *often separated.*

1. Hippúris *Linn.* Mare's Tail.

Perianth single, superior, forming a very indistinct rim to the germen. *Stam.* 1. *Style* 1. *Fruit* a small 1-seeded *Nut.* — Named from ἱππος, a *horse*, and ουρα, a *tail.*

1. H. *vulgaris* L. (*common Mare's-Tail*); leaves linear 6—8 or 10 in a whorl. *E. Bot.* t. 763; *Ed. Cat.* p. 6.

Ditches and, usually, stagnant waters; less frequent in Scotland. *Fl.* June, July. ♃. — *Stem* erect, simple, jointed. *Whorls* of about 8 *leaves*, which are callous at the point. *Flowers* at the base of each of the upper leaves, not unfrequently destitute of stamen. *Germen* oval, inferior; within its minute rim or border, at the summit, which constitutes the calyx, is situated the *stamen*, with its large two-lobed *anther*; when young, having the *style* passing between the two lobes. *Seed* fixed to the top of the cell of the *pericarp*, and thus inverted. In deep streams of water this plant attains to 2 or 3 feet, with the leaves excessively crowded, 3 and even 4 inches in length, pellucid, with an opaque nerve, their points not callous; the whole plant submerged and barren.

2. Myriophýllum *Linn.* Water-Milfoil.

Barren fl. Cal. inferior, of 4 leaves. *Pet.* 4. *Stam.* 8. — *Fertile fl. Cal.* of 4 leaves. *Pet.* 4. *Stigmas* 4, sessile. *Nuts* 4, sessile, subglobose, 1-seeded. — Name, μυριος, a *myriad*, and φυλλον, a *leaf*, from its numerous leaves.

1. M. *spicátum* L. (*spiked Water-Milfoil*); sterile flowers

forming an interrupted leafless many-whorled spike. *E. Bot.* t. 83; *Ed. Cat.* p. 9.

Ditches and stagnant waters. *Fl.* July, Aug. ♃. — *Stems* slender, much branched. *Leaves* 4 in a whorl, finely pectinated and always submerged. *Spikes* slender, 3—5 inches long.

2. M. *alterniflórum* DC. (*alternate-flowered Water-Milfoil*); sterile flowers mostly alternate on an erect leafless spike, fertile ones 1—3 in the axils of pectinated leaves at the base of the spike. *Bab. Fl. Sarn.* p. 36; and in *E. Bot. Suppl.* t. 2854; *Ed. Cat.* p. 9. M. spicatum β. *Sm.*

Detected by *Rev. A. Bloxham*, at Whixhall Moss, Salop. Since found in ponds and ditches in many places, in England, Jersey, and Scotland. *Fl.* July. ♃. — Very near the preceding it must be confessed, or, as it were, intermediate between it and the following. Dr. Bromfield considers the leaves to be always 3 in a whorl, not 4; but they are not so represented in *E. Bot.*

3. M. *verticillátum* L. (*whorled Water-Milfoil*); flowers all axillary. *E. Bot.* t. 218; *Ed. Cat.* p. 9.

Ponds and ditches in Norfolk and Cambridgeshire; Cheshire and Anglesea. *Fl.* July. ♃

3. CALLÍTRICHE *Linn.* Water-Starwort.

Barren fl. Perianth single, of 2 leaves (they are, rather, 2 *bracteas*) or none. *Anther* of 1 cell. — *Fert. fl. Germen* 4-lobed, lobes laterally compressed, indehiscent, with 4, 1-seeded cells. — Name, καλος, *beautiful*, and θριξ, *hair*. Its stems are long and slender, and resemble hairs.

1. C. *vérna* L. (*vernal Water-Starwort*); fructiferous peduncles very short with two bracteas at their base, fruit regularly tetragonal, each portion bluntly keeled at the back. *Arn. E. Fl.* v. i. p. 10; *Arn. in Ed. Journ. of Nat. and Geog. Sc.* v. i. p. 426; *Ed. Cat.* p. 3. C. aquatica, *E. Bot.* t. 722; *Hook. in Fl. Lond. N. S.* t. 127.

Ditches, pools, and slow streams, abundant. *Fl.* Apr. May. ☉. — This varies much, as do almost all aquatic plants, in its foliage. *Leaves* invariably connate: (*W. Wilson.*) Upper and floating ones generally oval and stalked, 2-ribbed; lower ones single-ribbed, linear; rarely all linear.

2. C. *pedunculáta* DC. (*pedunculated Water-Starwort*); fructiferous peduncles more or less elongated without bracteas at the base, fruit regularly tetragonal, each portion bluntly keeled at the back. *Arn. in Journ. of Nat. and Geogr. Sc.* v. i. p. 427; *Ed. Cat.* p. 3. C. autumnalis *Hook. in E. Bot. Suppl.* t. 2606, (*excl. the syn.*) *Bab.* — β. *sessilis.* — γ. *terrestris.*

Ditches in Jersey, Sussex, Shropshire, &c.—β. Jersey: *Mr. Babington.* Wales, Sussex: *Mr. Borrer.* Shropshire: *Mr. Leighton.* — γ. Ditton Marsh, in ditches that are dry in summer: *H. C. Watson, Esq. Fl.* June. ☉.

3. C. *platycárpa* Kutz. (*broad-fruited Water-Starwort*);

fructiferous peduncles almost none, or short, fruit tetragonous, somewhat winged at the back, styles erect before flowering, at length arched and reflexed, bracteas arched." *Bab. in Fl. Sarn.* p. 36; *Leight. Shropsh. Fl.* p. 446; *Ed. Cat.* p. 3. C. pedunculata *var.* spathulata *Bab. Mag. Zool. and Bot.* 1. p. 136; and in *E. Bot. Suppl.* t. 2864.

St. Lawrence, Jersey: *Mr. Babington.* Muddy ditches, not unfrequent; Shropshire: *Mr. Leighton. Fl.* June, July. ☉. — I fear sufficient allowance is not made for the great variations to which the species of this genus, and aquatic plants in general, are subject.

4. C. *autumnális* L. (*Autumnal Water-Starwort*); fructiferous peduncles very short without bracteas, fruit irregularly tetragonal, each portion broadly and acutely winged at the back. *Arn. E. Fl.* v. i. p. 10; *Hook. in E. Bot. Suppl.* t. 2732; *Ed. Cat.* p. 3. C. aquatica γ. *E. Bot.* t. 722 (*the small figure*).

Ditches, near London. Anglesea. Loch of Cluny, Scotland. *Fl.* June—Oct. ☉. — *Leaves* always sessile: *W. Wilson.*

Ord. XXIX. CERATOPHYLLEÆ.

Monœcious. *Perianth* single, free, many-parted. — *Barren fl. Anthers* several, sessile, 2-celled, bi-tricuspidate. — *Fertile fl. Ovary* free, 1-celled. *Style* oblique, filiform. *Nut* with 1 pendulous *seed*, and crowned with the hardened *stigma*. *Albumen* 0. *Embryo* with 4 whorled *cotyledons*. *Plumule* much divided.—*An aquatic Order, comprising one Genus, of doubtful affinity.* Lindley placed it near *Urticeæ*, Richard near *Coniferæ*, Agardh among *Naiades*. Leaves *whorled, rigid, with narrow serrated segments.*

1. Ceratophýllum *Linn.* Hornwort.

Barren fl. Cal. inferior, multipartite. *Cor.* 0. *Stam.* 16—20. — *Fertile fl. Cal.* multipartite. *Cor.* 0. *Germen* 1. *Style* filiform, curved. *Stigma* simple. *Nut* superior, 1-seeded. — Name, κερας, κερατος, a *horn*, and φυλλον, a *leaf*, from the forked leaves.

1. C. *demérsum* L. (*common Hornwort*); fruit armed with 2 spines near the base, and terminated by the curved subulate style. *E. Bot.* t. 947; *Ed. Cat.* p. 4.

Frequent in slow streams and ditches. *Fl.* July. ♃. — Floating. *Stem* long, slender. *Leaves* setaceous, whorled, 2 or 3 times forked, distantly serrated. *Flowers* small, whorled, in the axils of the leaves. *Anthers* sessile, crowded, spotted, 2-beaked, 2-celled. The foliage of this plant is often inflated and jointed, so as to look like a *Conferva*.

2. C. *submérsum* L. (*unarmed Hornwort*); fruit without spines. *E. Bot.* t. 679; *Ed. Cat.* p. 4.

Ditches, in the east and south of England. *Fl.* Sept. ♃. — Scarcely different from the preceding, but in the absence of spines on the fruit.

Ord. XXX. LYTHRARIEÆ.

Calyx of 1 piece, free, persistent, the lobes varying in number, valvate or distant in æstivation, often with intermediate teeth. *Petals* between the lobes of the calyx, sometimes 0. *Stamens* inserted within the tube of the calyx, equal to, or double or triple the number of petals. *Style* filiform. *Stigma* usually capitate. *Capsule* membranous, 2—4-celled, opening longitudinally or irregularly. *Seeds* numerous, without *albumen*, on a central receptacle. — Herbs, *with usually opposite leaves, without stipules:* flowers *axillary or racemose or spiked.* — Properties astringent. *Henna* of Ægypt is extracted from *Lawsonia inermis.*

1. Lýthrum *Linn.* Purple-Loosestrife.

Cal. inferior, tubular, with 12 teeth, alternately smaller. *Petals* 6, inserted upon the calyx. *Capsule* oblong, 2-celled. — Name, λυθρον, *blood*, — it is said from the red colour of the flowers.

1. L. *Salicária* L. (*spiked Purple-Loosestrife*); leaves opposite lanceolate cordate at the base, flowers in whorled leafy spikes with 12 stamens. *E. Bot.* t. 1061; *Ed. Cat.* p. 8.

Watery and marshy places, frequent. *Fl.* July. ♃. — 2—3 feet high, erect. *Stems* 4-sided. *Spikes* very long, of beautiful, purple *flowers*. *Cal.* striated. *Petals* oblong, cuneiform. *Stam.* within the tube of the *calyx*, 6 long and 6 short ones.

2. L. *hyssopifólium* L. (*hyssop-leaved Purple-Loosestrife*); leaves mostly alternate linear-lanceolate obtuse, flowers axillary solitary, stamens about 6. *E. Bot.* t. 292; *Ed. Cat.* p. 8.

Moist and occasionally inundated places, chiefly in the east of England. *Fl.* Aug. ☉. — A humble annual, 4—6 inches high, with small axillary *flowers*.

2. Péplis *Linn.* Water-Purslane.

Cal. campanulate, with 6 large and 6 alternating small teeth. *Pet.* 6, inserted upon the calyx, often wanting. *Caps.* superior, 2-celled, many-seeded. — Named from πεπλιον, anciently applied to the genus *Portulaca*, now to one somewhat similar in habit.

1. P. *Pórtula* L. (*Water-Purslane*); flowers axillary solitary, leaves obovate. *E. Bot.* t. 1211; *Ed. Cat.* p. 9.

Watery places, not unfrequent. *Fl.* July, Aug. ☉. — *Plant* prostrate, 5—6 inches long, creeping, little branched. *Leaves* opposite, glabrous, tapering at the base.

Ord. XXXI. TAMARISCINEÆ.

Calyx 4—5-parted, persistent, with an imbricated æstivation. *Petals* 4—5, from the base of the calyx. *Stamens* 4, 5, 8, or 10, free or united by their filaments. *Ovary* free. *Capsule*

3-gonal, 3-valved, 1-celled, with many comose *seeds*, on three receptacles, at the base of the cell or along the middle of the valves. *Albumen* 0. — Shrubs, *with twiggy branches and small scale-like leaves*. *Tamarix Gallica* and *Africana* yield sulphate of soda: the former, or a variety of it, also affords, according to Ehrenberg, the *Manna* of Mount Sinai.

1. Támarix *Linn.* Tamarisk.

Cal. 5-partite, persistent. *Cor.* of 5 petals. *Stam.* 5—10. *Stigmas* sessile, feathery. *Caps.* 1-celled, 3-valved, many-seeded. *Seeds* pappose. — Named from the *Tamarisci*, a people who inhabited the banks of the Tamaris, now *Tambra*, in Spain, where the Tamarisk abounds.

1. T. **Anglica* Webb (*English Tamarisk*); leaves minute amplexicaul appressed acute, spikes lateral somewhat panicled slender much longer than broad. T. Gallica *L.*: *E. Bot.* t. 1318; *Ed. Cat.* p. 13.

Rocks, cliffs, and sandy shores by the sea, about the Lizard and St. Michael's, Cornwall; Hurst Castle and Hastings. Near Landguard Fort; but evidently planted. *Fl.* July. ♄.

Ord. XXXII. CUCURBITACEÆ.

Frequently monœcious or dicœcious. *Calyx* 5-toothed, the tube adnate with the ovary. *Corolla* 5-cleft, often scarcely distinguishable from the calyx, frequently reticulated. *Stamens* 5, often more or less cohering. *Anthers* tortuose, 2-celled. *Ovary* 1-celled, with 3 parietal receptacles. *Style* short. *Stigmas* lobed, thick, velvety. *Fruit* fleshy. *Seeds* flat, in a juicy *aril*. *Embryo* flat. *Albumen* 0. *Cotyledons* foliaceous, nerved. — *Succulent climbing* plants, *with tendrils, frequently scabrous*. This Order contains *Cucurbita*, the *Gourd*; *Elaterium*, a powerful cathartic; *Cucumis*, the *Cucumber*, and *Melons*; among which are the *Colocynth, bitter-apples* or *bitter Cucumber*, *C. Colocynthis*, and *C. Lagenaria, bottle-gourd, &c.*; all abounding in a bitter laxative.

1. Bryónia *Linn.* Bryony.

Barren fl. Cal. 5-toothed. *Cor.* 5-cleft. *Filaments* 3. *Anthers* 5. — *Fertile fl. Cal.* 5-dentate. *Cor.* 5-cleft. *Style* trifid. *Berry* inferior, globose, many-seeded. — Named from βρυω, to *shoot*, or *grow rapidly*, in allusion to the quick growth of the stems.

1. B. *dioíca* Jacq. (*red-berried Bryony*); leaves palmate rough on both sides, flowers dicœcious. *E. Bot.* t. 439; *Ed. Cat.* p. 2.

Thickets and hedges, frequent in England; not indigenous to Scotland. *Fl.* May, ♄. — *Root* very large, white and branched. *Stem* long, slender, branched, weak and climbing, with simple *tendrils*. *Leaves* large. *Flowers* in axillary bunches. *Cor.* whitish, with green veins. *Berries* red. The plant abounds with a fetid and acrid juice.

Ord. XXXIII. PORTULACEÆ.

Sepals 2, rarely 3 or 5, cohering by their base. *Petals* mostly 5, sometimes wanting. *Stamens* (as well as the petals) inserted on the base of the calyx, of uncertain number, and often opposite the petals. *Ovary* 1-celled. *Style* 1 or 0. *Stigmas* several. *Capsule* opening transversely or by 3 valves. *Seeds* numerous, on a central receptacle. *Albumen* farinaceous, surrounded by the curved *Embryo*. — *Succulent* Herbs *or* Shrubs. *Portulaca sativa* is the *Purslane*.

1. Móntia *Linn.* Blinks.

Cal. of leaves. *Cor.* of 5 irregular *petals* united at the base into one. *Caps.* 3-valved, 3-seeded. — Named in honour of *Joseph de Monti*, a professor of Botany and Nat. History at Bologna.

1. M. *fontána* L. (*Water-Blinks* or *Chickweed*). *E. Bot.* t. 1206; *Ed. Cat.* p. 9.

Rills, springy and wet places. *Fl.* June, July. ☉. — Whole plant succulent, varying considerably in size. *Stem* prostrate and rooting. *Leaves* small, opposite, spathulate. *Peduncles* nearly terminal, often forked. *Flowers* white, at first drooping. *Stam.* upon the corolla, short. *Germen* and *capsule* roundish. *Seeds* 3, subreniform, dotted. — The β. *major* of Willd. and DeCand. (*M. repens* of Gmel. Fl. Bad.) is not uncommon in Scotland, and is found in Caernarvonshire.

Ord. XXXIV. PARONYCHIEÆ.

Sepals 5 (rarely 3 or 4), more or less cohering at the base. *Petals* minute, alternating with the lobes of the calyx, or 0. *Ovary* free. *Styles* 2—5. *Fruit* small, dry, 1- (rarely 3-) celled, 1—3 valved, or indehiscent. *Seeds* numerous on a free central receptacle, or solitary and suspended on a long stalk arising from the base of the cell. *Albumen* farinaceous, curved, lateral. — *Small branching* herbaceous *or* suffruticose plants, *with sessile entire* leaves *and membranaceous stipules* (*except in* Scleranthus). Flowers *sessile, small.* — An Order closely allied in many respects to Caryophylleæ, as also to Amaranthaceæ and Chenopodeæ, and like these two, having frequently a single perianth.

1. Corrigíola *Linn.* Strapwort.

Cal. inferior, of 5 leaves, permanent. *Pet.* 5, not exceeding the calyx. *Seed* solitary, naked. — Named from *corrigia*, a *strap*, or *thong*; formerly applied to the *Polygonum aviculare* on account of its long pliant stems: and now to a plant which is somewhat similar to it in habit.

1. C. *littorális* L. (*Sand Strapwort*); stem leafy among the flowers. *E. Bot.* t. 668; *Ed. Cat.* p. 4.

Rare; on the south-western coast of England. On Slapham sands and near the Star-point, Devon; and at Helston, Cornwall. *Fl.* July, Aug. ⊙. — *Stems* numerous from the top of the root, spreading, slender. *Leaves* linear, obtuse, somewhat fleshy and very glaucous. *Stipules* small, membranaceous, white. *Flowers* small, in little branching clusters, from the axils of the upper leaves

2. Herniária *Linn.* Rupture-wort.

Cal. deeply 5-cleft, persistent. *Stam.* 5 fertile and 5 sterile filaments inserted upon a fleshy disk. *Stigmas* nearly sessile. *Fruit* indehiscent, 1-seeded, covered by the calyx. — Named from the plant having been supposed to be useful in the cure of *Hernia.*

1. H. *glábra* L. (*glabrous Rupture-wort*); stems prostrate herbaceous woody at the base in age, leaves oval a little tapering at the base, nearly glabrous or ciliate and more or less hairy, clusters of sessile flowers axillary. *E. Bot.* t. 206; *Bab. in Linn. Trans.* v. xvii. p. 452; *Ed. Cat.* p. 6. — *var. hirsutior.* H. ciliata *Bab. in Linn. Trans.* v. xvii. p. 453, and in *E. Bot. Suppl.* t. 2857; *Hook. Br. Fl.* ed. iv. p. 126.

Near Newmarket, Lizard, Cornwall. Jersey and Guernsey: *Babington* and *Christy.* Western part of Kerry, Ireland, 1841: *Mr. W. Andrews.* *Fl.* July, Aug. ♃. — The Lizard certainly does afford both the glabrous and hairy states of this variable plant; and there are such gradations between it and the *H. ciliata* of Mr. Babington, that it is not possible to define the limits of the varieties. My specimens of *H. glabra*, gathered in Jersey by Mr. Babington, assuredly more resemble his figure of *H. ciliata*, than Smith's figure of *H. glabra.*

2. H. *hirsúta* L. (*hairy Rupture-wort*); stems herbaceous prostrate clothed with patent hairs, leaves oval-oblong, clusters of sessile flowers axillary. *E. Bot.* t. 1379; *Bab. in Linn. Trans.* v. xvii. p. 451.

Sandy ground near Barnet; *G. Hudson:* but no one has since found it. *Fl.* July, Aug. ♄. — Mr. Mackay has sent me a cultivated specimen of *H. hirsuta* E. Bot., from the garden of Mr. Turner, at Yarmouth, which is, probably, good authority for that plant. It is rather the *incana* of Lamarck than the *hirsuta* of authors: but, notwithstanding that the leaves are narrower than in our *glabra*, I agree with Mr. Mackay in thinking it to be a hoary *var.* of that plant.

3. Illécebrum *Linn.* Knot-Grass.

Cal. of 5 leaves, cartilaginous, subcucullate, ending in an awl-shaped point. *Pet.* 0, or reduced to 5 subulate *scales.* *Capsule* superior, with one *seed,* covered by the calyx. — Name: *illecebra,* an *enticement* or *attraction,* anciently given to a showy tribe of plants, now confined to a genus possessing few charms.

1. I. *verticillátum* L. (*whorled Knot-grass*); stems procumbent filiform glabrous, leaves broadly ovate, flowers axillary in crowded whorls. *E. Bot.* t. 895; *Ed. Cat.* p. 7.

Marshy or boggy ground, in Devonshire and Cornwall. *Fl.* July.

♃. — A small plant, with spreading and procumbent *stems*; white, scariose *stipules* jagged at the margin; and numerous whitish *flowers*.

4. Polycárpon *Linn.* All-seed.

Cal. of 5 leaves. *Pet.* 5, emarginate. *Stam.* 3—5. *Caps.* 1-celled, 3-valved, many-seeded. — Named from πολυ, *many*, and καρπος, *fruit*; applied by the ancients to the *Polygonum aviculare*, to which the present genus is somewhat similar.

1. P. *tetraphýllum* L. (*four-leaved All-seed*); triandrous, petals notched, stem-leaves in fours, those of the branches opposite. *E. Bot.* t. 1031; *Ed. Cat.* p. 10.

Southern coasts of England; particularly Devonshire, Dorsetshire, and Portland Island, Jersey and Guernsey. *Fl.* summer months. ☉.

5. Scleránthus *Linn.* Knawel.

Cal. of 1 piece, 5-cleft. *Cor.* 0. *Stam.* 10, inserted upon the *cal.*, 5 frequently abortive or wanting. *Capsule* 1-seeded, covered by the calyx. — Named from σκληρος, *hard*, and ανθος, a *flower*; from the indurated nature of the floral covering.

1. S. *ánnuus* L. (*annual Knawel*); calyx of the fruit with erecto-patent rather acute segments, stems spreading, root annual. *E. Bot.* t. 351; *E. Fl.* v. ii. p. 282; *Ed. Cat.* p. 12.

Corn-fields, frequent. *Fl.* July. ☉. — *Stems* many, much branched in a dichotomous manner, slender, subpubescent, straggling. *Leaves* linear-subulate, keeled, opposite and combined at the base by a membranous fringed margin. *Flowers* green, inconspicuous, in axillary, leafy clusters. *Cal.* urceolate, ribbed, with 5 ovato-lanceolate teeth, in my specimens white and membranous at the edge as in the following, spreading when in flower, almost erect when in fruit, as represented in *E. Bot.* t. 351, left-hand figure.

2. S. *perénnis* L. (*perennial Knawel*); calyx of the fruit with obtuse closed segments edged with a broad white membrane, stems procumbent, root perennial. *E. Bot.* t. 352; *E. Fl.* v. ii. p. 283; *Ed. Cat.* p. 12. S. polycarpos *Lightf. Scot.* p. 1143?

Open dry sandy fields, in Norfolk and Suffolk. Near Forfar. *Fl.* Aug.—Oct. ♃.

Ord. XXXV. CRASSULACEÆ.

Sepals 3—20, more or less cohering at the base. *Petals* 3—20, inserted (as well as the stamens) at the base of the calyx. *Stamens* as many as petals, or twice that number, and then frequently alternatly shorter and taller. *Glands* 5, or obsolete. *Follicles* as many as petals, 1-celled, tapering into *stigmas*. *Seeds* fixed in a double row to the sutures. *Albumen* thin.— Herbs *or* shrubs, *with fleshy leaves and no stipules.*

1. Tillæa *Linn.* Tillæa.

Cal. 3—4-partite. *Pet.* 3 or 4. *Caps.* 3 or 4, 2-seeded.

— Named after *Michael Angelo Tilli*, an Italian Botanist who wrote in 1723 a catalogue of the plants in the Medical Garden at Pisa.

1. T. *muscósa* L. (*mossy Tillæa*); stems branched and decumbent at the base, flowers axillary sessile mostly 3-cleft. *E. Bot.* t. 116; *Ed. Cat.* p. 14.

On moist, barren, sandy heaths, in various parts of England, not found in Scotland. A troublesome weed in gravel-walks in some parts of Norfolk and near London. *Fl.* May, June. ☉. — A minute succulent plant, scarcely 2 inches high, allied to *Sedum:* with small, reddish, opposite, oblong, blunt *leaves*. *Cal. leaves* mostly 3, bristle-pointed. *Petals* very small, almost subulate, white or tipped with rose-colour.

2. Cotylédon *Linn.* Pennywort.

Cal. 5-partite. *Cor.* monopetalous, tubular, 5-cleft. *Capsules* 5, each with a *gland* or nectariferous scale at its base. — Named from κοτυλη, a *cup*, to which the leaves of some of the species may bear a distant resemblance.

1. C. *Umbilícus* Huds. (*Wall Pennywort*); leaves peltate crenate depressed in the centre, stem with a (usually) simple raceme of pendulous flowers, upper bracteas minute entire. *E. Bot.* t. 325; *Ed. Cat.* p. 4. Umbilicus pendulinus *DC.*

Rocks, walls and old buildings, especially in subalpine countries. *Fl.* June—Aug. ♃. — Whole plant succulent. *Stems* from 6 inches to a foot high, rounded. *Leaves* mostly radical. *Flowers* cylindrical, yellowish-green.

2. C. **lútea* Huds. (*yellow Pennywort*); lower leaves only somewhat peltate crenate, raceme with erect flowers, bracteas subdentate. *E. Bot.* t. 1522; *Ed. Cat.* p. 4. Umbillicus erectus *DC.*

Said to have been found in the West Riding of Yorkshire, and in Somersetshire. *Fl.* July. ♃.

3. Sempervívum *Linn.* House-leek.

Cal. 12-cleft. *Pet.* 12. *Capsules* 12. — Name derived from *semper*, *always*, and *vivo*, to *live*; because it is always green.

1. S. **tectórum* L. (*common House-leek*); leaves ciliated, offsets spreading, petals entire and hairy at the margins. *E. Bot.* t. 1320; *Ed. Cat.* p. 13.

House-tops and on walls. *Fl.* July. ♃. — The *flowers* of this well-known and rustic medicinal plant are no less beautiful than they are curious in their structure. The number of *stamens* is in reality 24; of which 12, inserted 1 at the base of each *petal*, are perfect; the rest, alternating with the *petals*, small and abortive; some, bearing *anthers*, open longitudinally and laterally, producing, instead of pollen, *abortive ovules!* others resemble a cuneate pointed scale, inside which, upon a longitudinal receptacle, are likewise ranged abortive *ovules*, in the same manner as in the real germen; thus exhibiting the most com-

plete transition from stamens to germens, in the same individual flower. See the *fig.* in *Fl. Lond. ed.* 2.

4. Sédum *Linn.* Orpine and Stonecrop.

Cal. in 5 (sometimes 4—8) deep segments, often resembling the leaves. *Petals* 5, patent. *Germens* 5, each with a nectariferous scale at its base. — Named from *sedo*, to sit; from the humble growth of these plants on their native rocks.

* *Leaves plane.*

1. S. *Teléphium* L. (*Orpine*, or *Live-long*); leaves oval-oblong plane serrated, corymbs leafy, stems erect. *E. Bot.* t. 1319; *Ed. Cat.* p. 12.

Borders of fields, hedge-banks, and waste places among bushes. *Fl.* July. ♃. — 1—2 feet high. *Stem* spotted. *Leaves* broad. *Flowers* purple. Very unlike any of the following species, and in habit resembling *Rhodiola rosea.*

** *Leaves terete. Flowers white or reddish.*

2. S. *dasyphýllum* L. (*thick-leaved Stonecrop*); leaves opposite (except on the flowering-stems) ovato-globose fleshy, panicles glutinous. *E. Bot.* t. 656; *Ed. Cat.* p. 13.

Walls and rocks, in several parts of England. Conway, Wales. Collinton woods, Edinburgh. Cork. *Fl.* June. ♃. — *Stems* slender, procumbent below, slightly viscid. *Flowering-stems* 2—3 inches high. *Leaves* short, singularly thick and fleshy, glaucous with a reddish tinge and dotted. *Flowers* tinged with rose-colour. *Petals* and *pistils* 5—8.

3. S. *Anglicum* Huds. (*English Stonecrop*); leaves alternate ovate gibbous fleshy produced at the base, cymes few-flowered, petals very sharp at the point. *E. Bot.* t. 171; *Ed. Cat.* p. 13.

Sandy and rocky places, especially near the sea; common in N. Wales; most abundant in Scotland and Ireland, on rocks inland as well as by the sea-shores. *Fl.* June, July. ☉. — 2—3 inches high, much branched, procumbent below. *Leaves* glaucous-green, often tinged with red. *Flowers* few in each *cyme*, but very conspicuous from their white, starlike appearance, and their purple *anthers*. It is a great ornament to some of the most barren rocks in the Highlands and Hebrides.

4. S. *álbum* L. (*white Stonecrop*); leaves scattered oblongo-cylindrical obtuse spreading, cyme much branched. *E. Bot.* t. 1578; *Ed. Cat.* p. 13.

Rocks, walls, and roofs of houses; in Middlesex, Worcestershire, Suffolk, and about Peterborough. Wich Cliffs, Somerset. Forfar and Glammis; Scotland. *Fl.* July. ♃. — *Stems* prostrate below, the *flowering-stem* only erect, 3—5 inches high. *Leaves* pale glaucous-green, sometimes tinged with red. *Flowers* crowded, white or only tinged with rose-colour.

5. S. *villósum* L. (*hairy Stonecrop*); leaves scattered oblong, flattened above, and as well as the peduncles and stems hairy and viscid. *E. Bot.* t. 394; *Ed. Cat.* p. 13.

Stony and moist places, by the sides of rills, frequent in the north of England and Scotland; especially in the subalpine parts. *Fl.* June,

July. ♃. (*Sm.*) — 3—4 inches high, reddish-purple. *Leaves*, on the short barren shoots, almost exactly cylindrical. *Flowers* few, of a pale rose-colour.

*** *Leaves terete. Flowers yellow.*

6. S. *ácre* L. (*biting Stonecrop* or *Wall-pepper*); leaves erect alternate ovate gibbous fleshy produced at the base, cymes trifid glabrous leafy. *E. Bot.* t. 839; *Ed. Cat.* p. 13.

Walls, rocks, and sandy ground, frequent. *Fl.* June. ♃. — Distinguished among our yellow-coloured species, by its upright, short and very succulent *leaves*, closely imbricated on the barren shoots. Very biting when chewed; and hence its name of *Wall-pepper*.

7. S. *sexanguláre* L. (*tasteless yellow Stonecrop*); leaves generally in 6 rows whorled on the barren shoots cylindrical fleshy spreading produced at the base, cymes trifid. *E. Bot.* t. 1946; *Ed. Cat.* p. 13.

Old walls in the east of England, rare. Isle of Sheppey; Greenwich Park; in Cambridgeshire and Old Sarum. *Fl.* July. ♃. — Well distinguished from the last by its spreading, larger and slenderer *leaves*, and by their insertion.

8. S. *reflexum* L. (*crooked yellow Stonecrop*); leaves awl-shaped scattered spurred at the base, the lowermost recurved, flowers cymose, segments of the calyx ovate. *Sm. E. Bot.* t. 695; *Ed. Cat.* p. 13.

Walls, roofs of houses and thatched buildings, frequent. *Fl.* July. ♃. — Sterile *branches* with thickly placed *leaves*, often reflexed. *Flowering-stems* 6—8 inches high. *Cyme* large, yellow. *Flowers* numerous, often with 6 *petals* and 12 *stamens*. Very similar to this are the three following species.

9. S. *glaúcum* Donn (*glaucous yellow Stonecrop*); "leaves glaucous awl-shaped scattered produced at the base, those of the branches thread-shaped, flowers cymose, segments of the calyx lanceolate." *E. Bot.* t. 2477; *Ed. Cat.* p. 13.

Rough hills near Mildenhall, Suffolk. Sunday's well and Glaskeen, Ireland. *Fl.* July, Aug. ♃. — "Differs from the last in being of a more glaucous hue, with much slenderer *leaves*, especially on the radical shoots. The branches of the *cyme* are more uniformly spreading and the segments of the *calyx* are narrower and more pointed." *Sm.*

10. S. *rupéstre* L. (*St. Vincent's Rock Stonecrop*); "leaves glaucous produced at the base, those of the branches awl-shaped erect in five close rows, flowers imperfectly cymose, segments of the calyx elliptical obtuse." *E. Bot.* t. 170; *Ed. Cat.* p. 13.

St. Vincent and Cheddar rocks, Somersetshire. Walls about Darlington, Yorkshire. *Fl.* July. ♃.

11. S. *Forsteriánum* Sm. (*Welsh Rock Stonecrop*); "leaves produced at the base, those of the branches semicylindrical bluntish pointed spreading in many rows, flowers cymose, segments of the calyx elliptical obtuse." *E. Bot.* t. 1802; *Ed. Cat.* p. 13.

Rocks in Wales; fall of Rhydoll, Cardiganshire. Hisväe, valley of Nant-phrancon. Little Ormeshead. *Fl.* June, July. — "Perhaps the compact, hemisphærical or round-topped *cyme* is the best mark by which to distinguish this from *S. reflexum.*" *Mr. W. Wilson.*

5. Rhodíola *Linn.* Rose-root.

Barren fl. Cal. 4-partite. *Pet.* 4. *Glands* 4, emarginate. — *Fertile fl. Cal.* 4-partite. *Pet.* 4. *Glands* 4, emarginate. *Germens* 4. *Caps.* many-seeded. — Name, ῥοδον, a *rose;* from the scent of the roots.

1. R. *rósea* L. (*Rose-root*); *E. Bot.* t. 508. Sedum Rhodiola *DC.: Ed. Cat.* p. 13.

Wet rocks, on the high mountains of the north of England and Ireland and in the north-west of Scotland, abundant; likewise on cliffs by the sea-shore. *Fl.* June, ♃. — *Root* large, woody, when dry yielding a smell that has been compared to that of *Roses. Stem* 6—8 or 10 inches high, simple. *Leaves* numerous, obovato-oblong, serrated at the point, and in the *sterile plant* often tipped with a reddish tinge. *Flowers* in a small, compact, terminal *cyme*, yellow; agreeing with *Sedum* in every thing but the number of their parts, and having the habit of *S. Telephium.*

Ord. XXXVI. GROSSULARIEÆ.

Calyx 4—5-cleft, the *tube* entirely or in part adnate with the *ovary. Petals* 5, small, placed at the mouth of the tube alternately with the 5 short *stamens. Ovary* 1-celled, with two opposite parietal receptacles. *Style* cleft. *Berry* crowned with the remains of the flower, containing many *seeds* suspended by long stalks among the pulp. *Albumen* horny. — Shrubs, *often spiny, of temperate climates, with alternate lobed* leaves. *Gooseberry* and *Currant* Family.

1. Ríbes *Linn.* Currant and Gooseberry.

Cal. 5-cleft, bearing the *petals* and the *stamens. Style* divided. *Berry* 1-celled, many-seeded. — Name: *Ribes* was a word applied by the Arabic Physicians to a species of *Rhubarb, Rheum Ribes.* Our older Botanists believed that it was our *gooseberry;* and hence Bauhin called that plant *Ribes acidum.*

1. R. *rúbrum* L. (*common or red Currant*); without thorns, racemes mostly glabrous and pendulous, bracteas very small, limb of the calyx nearly plane, petals obtuse. *E. Bot.* t. 1289; *Ed. Cat.* p. 11. — β. *petræum;* racemes slightly downy, erect in flower, in fruit pendulous. R. petræum *Sm.* (*not Wulf., according to Mr. Babington*): *E. Bot.* t. 705; *Ed. Cat.* p. 11. — γ. *spicatum;* racemes spicate erect in flower and in fruit. R. spicatum *Robs. in Linn. Tr.* v. iii. p. 240. t. 21: *E. Bot.* t. 2290.

Alpine woods; by the Tees-side in England. In Islay, one of the Hebrides, and about Culross in Scotland: not unfrequent in hedges,

but scarcely wild in such situations. — β. North of England and Scotland. — γ. Woods near Richmond, Yorkshire. *Fl.* May. ♄. — *Leaves* 5-lobed, doubly serrated, on longish stalks. *Flowers* greenish. *Fruit* usually red; in gardens white and rose-coloured. Mr. Ward finds specimens quite intermediate between *R. rubrum* and *R. petræum;* and I am satisfied that *R. spicatum* is only another *var.*

2. R. *alpínum* L. (*tasteless Mountain Currant*); frequently (always?) dicœcious, without thorns, racemes erect both in flower and fruit, flowers shorter than the bracteas, limb of the calyx concave, leaves shining beneath. *E. Bot.* t. 704; *Ed. Cat.* p. 11.

Woods, in the north of England. About Bradford and Ripon, Yorkshire. Woods, and fissures of rocks, in Scotland. Woods at Cadzow Castle, near Hamilton. *Fl.* May. ♄. — *Leaves* small, frequently 3-lobed; lobes acute, deeply serrated. *Racemes* few-flowered; *flowers* small. *Berries* red. Well distinguished by the length of its bracteas.

3. R. *nígrum* L. (*black Currant*); without thorns, racemes lax downy pendulous with a separate simple flower-stalk at their base, limb of the calyx campanulate, leaves dotted with glands beneath. *E. Bot.* t. 1291; *Ed. Cat.* p. 11.

Woods and river-sides, in various situations. *Fl.* May. ♄. — *Berries* the largest of our Currants, black, much esteemed medicinally and for making jelly. The glands of the *leaves* yield a peculiar smell when bruised, which has been compared to that of *Savin* (*Juniperus Sabini.*)

4. R. **Grossulária* L. (*common Gooseberry*); thorny, leaves rounded and lobed, peduncles hairy single-flowered with a pair of minute bracteas, fruit more or less hairy. *E. Bot.* t. 1292; *Ed. Cat.* p. 11. R. Uva-crispa *L.: E. Bot.* t. 2057.

Hedges and thickets. Apparently indigenous in Hamilton woods, Scotland. *Fl.* April, May. ♄. — *Thorns* immediately beneath a fascicle of *leaves*, solitary, or 2—3 combined at the base, spreading. *Fruit* much esteemed in cool and temperate climates, where alone it comes to perfection; and varying exceedingly by cultivation, in size, colour, and flavour.

Ord. XXXVII. SAXIFRAGEÆ.

Calyx of 4—5 sepals, or united into a tube which is wholly or in part adnate with the ovary. *Petals* 5, or 0. *Stamens* 5—10. *Glandular disk* present or wanting. *Ovary* with usually two diverging *styles*, 2-celled, with a central receptacle; or 1-celled, with parietal receptacles. *Capsule* 2-valved. *Seeds* numerous. *Albumen* fleshy. — *Small, mostly* herbaceous plants, *frequent in northern and alpine regions.*

1. Saxífraga *Linn.* Saxifrage.

Cal. superior, or inferior, or ½ inferior, in 5 segments. *Cor.* of 5 petals. *Caps.* with 2 beaks, 2-celled, many-seeded, opening between the beaks. *Seeds* upon a receptacle attached to

the dissepiment. — Named from *saxum*, a *stone*, and *frango*, to *break*; in allusion to the supposed medicinal virtues of this plant; or, perhaps, to its roots penetrating the crevices of rocks and stones, among which the different species generally grow.

* *Cal. reflexed, inferior. Flowers panicled.*

1. S. *Géum* L. (*kidney-shaped Saxifrage*); leaves rotundato-reniform acutely crenate more or less hairy, footstalks linear channelled, scape panicled, capsules superior. — α. leaves hairy on both sides, their under surface beautifully reticulated with purple: *Mackay. Ed. Cat.* p. 12. — β. leaves glabrous on both sides, more sharply toothed: *Mackay.* S. Geum, *E. Bot.* t. 1561 (*leaves smaller than usual*). — γ. leaves light green glabrous and shining, sharply toothed: *Mackay.* — δ. leaves orbicular dark-green glabrous on both sides, footstalks short: *Mackay.* S. elegans *Mackay.* — ε. leaves hairy on both sides smaller than in any of the preceding, flowers cream-coloured spotless, scape slender: *Mackay.*

Mountains, in the south of Ireland. *Fl.* June. ♃. — This species has the margin of the teeth cartilaginous, but less so than the two following.

2. S. *hirsúta* L. (*hairy oval-leaved Saxifrage*); leaves more or less cordate at the base slightly hairy, footstalks linear, scape panicled, capsule superior. *E. Bot.* t. 2322; *Ed. Cat.* p. 12.

Gap of Dunloe, near Killarney: *Mr. J. T. Mackay. Fl.* June. ♃. — Readily distinguished, Mr. Mackay observes, from *S. Geum*, by its oval leaves which are of a deep green colour. But my friend, the Rev. W. T. Bree, who has cultivated and studied the *Saxifrages* very assiduously, says that it is certainly a hybrid between the preceding and the following.

3. S. *umbrósa* L. (*London-pride Saxifrage* or *None-so-pretty*); leaves roundish-oval with cartilaginous teeth tapering gradually into a broad footstalk, panicle small, capsule superior. *E. Bot.* t. 663; *Ed. Cat.* p. 12. — β. leaves roundish with sharp tooth-like serratures, fruitstalks elongated: *Mackay.* S. punctata *Haworth* (not *Sm.*). — γ. leaves oblongo-ovate glabrous light green with deep acute serratures: *Mackay.* Robertsonia serrata *Haworth.*

Plentiful on mountains in the south and west of Ireland. This species is found in woods at Wetherby, and in Craven, Yorkshire, and about Edinburgh and Glasgow, but not really wild. *Fl.* June. ♃. — Well known in our gardens, even amid the smoke of London; hence, and in consequence of its beautifully spotted flower, it is called, with us, *London-pride*; in Ireland, *St. Patrick's Cabbage.*

4. S. *stelláris* L. (*starry Saxifrage*); leaves oblongo-cuneiform angulato-serrate scarcely petiolate, panicle subcorymbose of few flowers, capsule superior. *E. Bot.* t. 167; *Ed. Cat.* p. 12. — β. leaves quite entire.

Sides of rivulets and wet rocks, in the mountainous parts of the north of England, Scotland, and Ireland. — β. Rocks on Ben Nevis: *Mr. S.*

Murray. Fl. June—Aug. ♃. — *Stems* short, growing frequently in tufts. *Leaves* with coarse teeth ; in β. quite entire, and thence having so different an aspect, that, at first sight, Mr. Murray as well as myself considered it to be a totally distinct species.

** *Calyx spreading, half-superior. Scape with a head of flowers.*

5. S. *nivális* L. (*clustered alpine Saxifrage*) ; leaves obovate subpetiolate acutely crenate subcoriaceous, scape terminated by a dense cluster of flowers, capsule half-inferior. *E. Bot.* t. 440 ; *Ed. Cat.* p. 12.

Mountains of Wales, and frequent in the rocky clefts of the Highland mountains of Scotland. *Fl.* Aug. ♃. — *Leaves* subcoriaceous, glabrous above. *Scape* glanduloso-pubescent, sometimes a little branched.

*** *Calyx partly or entirely inferior. Stem leafy. Leaves undivided.*

6. S. *oppositifólia* L. (*purple Mountain Saxifrage*) ; leaves ovate opposite imbricated ciliated, flowers solitary terminal. *E. Bot.* t. 9 ; *E. Fl.* v. ii. p. 266 ; *Ed. Cat.* p. 12.

Moist alpine rocks. Ingleborough. Snowdon and other Welsh mountains. Frequent on the Highland mountains of Scotland. *Fl.* April, May. ♃. — Grows in straggling tufts, with a habit quite different from that of any other British *Saxifrage*. *Flowers* large in proportion to the size of the plant, purple, very beautiful. The *leaves* are retuse, ciliated, and have a pore at the extremity. *Capsule* half-inferior.

7. S. *Hírculus* L. (*yellow Marsh Saxifrage*) ; stem erect, leaves alternate lanceolate, those from the root attenuated into a petiole, calyx inferior at length reflexed obtuse downy at the margin as well as the upper part of the stem. *E. Bot.* t. 1099 ; *Ed. Cat.* p. 12.

Wet moors, very rare. Knutsford, Cheshire. Cotherstone-fell, Yorkshire. Moor, south of Langton Lees Farm-house, Berwickshire, plentiful. Queen's County, Ireland. *Fl.* Aug. ♃. — *Flowers* yellow, large, solitary. *Petals* almost elliptical. It is singular that this plant, which I have seen abundantly in Iceland, and which was found so plentifully by our *arctic* American voyagers and travellers, should grow no further north in Britain than Berwickshire.

8. S. *aizoídes* L. (*yellow Mountain Saxifrage*) ; lower leaves of the stem numerous crowded, the rest scattered linear-lanceolate fleshy more or less ciliated, stem branched ascending, calyx spreading, capsule half-superior. *E. Bot.* t. 39 ; *Ed. Cat.* p. 12.

Abundant near alpine rills, and in springy places, in mountainous countries ; north of England, Wales, Scotland, and Ireland. *Fl.* July — Sept. ♃. — 5—7 inches high, branching below. *Flowers* panicled, subcorymbose, bright yellow ; each *petal* beautifully spotted with orange.

**** *Calyx spreading. Leaves more or less divided. Flowering-stems erect, more or less leafy.*

9. S. *granuláta* L. (*white Meadow Saxifrage*) ; radical leaves reniform on long footstalks obtusely lobed, those of the upper

part of the stem nearly sessile acutely lobed, stem panicled, root granulated. *E. Bot.* t. 500; *Ed. Cat.* p. 12.

Hedge-banks, meadows and pastures, especially on a gravelly soil. In many parts of the south of Scotland; but scarcely known in the Highlands. Between Beldoyle and Portmarnock, Ireland. *Fl.* May, June. ♃. — *Root* consisting of numerous, small, clustered *tubers*. *Stem* 8—12 inches high, glanduloso-pilose. *Leaves* mostly radical, glabrous; *petioles* glandular. *Flowers* large, white. *Germen* and *capsule* half-inferior.

10. S. *cérnua* L. (*drooping bulbous Saxifrage*); radical leaves reniform on long footstalks palmato-lobate, superior ones nearly sessile subtrifid, stem simple bulbiferous with one terminal flower. *E. Bot.* t. 664; *Ed. Cat.* p. 12.

Dry rocks (not about rills), on the highest of the Breadalbane mountains; summit of Ben Lawers, and on Craigalleach. *Fl.* June—Aug. ♃. — 3—4 or 5 inches high, slender. *Leaves* glabrous, and the *stem*, which droops at the extremity, nearly so. In the axils of the small upper *leaves*, instead of flowers, are clusters of minute reddish *bulbs*. Frequently there is no *flower*, and I have never seen more than one upon a stem, and that is terminal, large in proportion to the size of the plant, and white; *petals* retuse. In the *E. Bot.* figure, the *root-leaves* are much less deeply lobed than in my specimens.

11. S. *rivuláris* L. (*alpine Brook Saxifrage*); leaves 3—5-lobed palmated glabrous on long stalks, stem slender branched pubescent, branches few-flowered, bracteas oblong sessile 3-lobed and entire, capsule half-inferior. *E. Bot.* t. 2275; *Ed. Cat.* p. 12.

Moist alpine rocks in Scotland; rare. Near the summit of Ben Nevis, but very scarce, as it is likewise on Ben Lawers. Plentiful on Loch-na-gar, in Forfarshire. *Fl.* Aug. Sept. ♃.

12. S. *tridactylítes* L. (*rue-leaved Saxifrage*); glandular and viscid, leaves cuneate 3—5-fid, the uppermost bracteas undivided, stem panicled, pedicels single-flowered, capsule inferior. *E. Bot.* t. 501; *Ed. Cat.* p. 12.

Common on walls and dry barren ground, in England and the Lowlands of Scotland; rare however in the west of Scotland, and especially in the Highlands. *Fl.* May, June. ☉. — 2—4 inches high. Whole plant covered with viscid *hairs*. *Petals* small, pure white, scarcely longer than the *segments* of the *calyx*. *Capsule* almost wholly inferior.

13. S. *hypnoídes* L. (*mossy Saxifrage*); root-leaves 3 or 5-cleft, those of the procumbent shoot undivided or 3-cleft all bristle-pointed and more or less fringed, segments of the calyx ovate pointed, petals roundish-obovate. — *α.* leaves of the procumbent shoots undivided, sometimes with axillary buds. S. hypnoides *L.: E. Bot.* t. 454; *Ed. Cat.* p. 12. S. leptophylla *Pers.: Don, E. Fl.* v. ii. p. 279. — *β.* leaves of the procumbent shoots eitner undivided or 3-cleft, petals usually broad. S. platypetala *E. Bot.* t. 2276. S. hirta *Don: E. Bot.* t. 2291.

Frequent in rocky mountainous situations, England, Scotland, and Ireland. *Fl.* May—July. ♃. — An abundant and rather variable plant: and I fear the five following species of Mr. Don, or Sir J. E. Smith, are only slightly modified forms of the true *hypnoides*.

1. S. *affínis* Don, " radical leaves 5-cleft, those of the trailing shoots mostly 3-cleft, lobes linear pointed, segments of the calyx awl-shaped channelled pointed recurved, petals oblong inflexed at the edges." *Tr. of Linn. Soc.* v. xiii. p. 418; *E. Fl.* v. ii. p. 275. On the top of Brandon mountain, Ireland.

2. S. *incurvifólia* Don, " somewhat glabrous, radical leaves 5-cleft, those of the trailing shoots 3-cleft, segments lanceolate obtuse incurved, calycine segments ovate acute, petals roundish emarginate." *Tr. of Linn. Soc.* v. xiii. p. 423; *E. Fl.* v. ii. p. 277. Alpine rocks, Ireland.

3. S. *denudáta* Don, " somewhat glabrous, radical leaves 5-cleft, those of the trailing shoots tripartite, segments linear-subulate acute, calycine segments lanceolate mucronulate, petals obovate emarginate." *Tr. of Linn. Soc.* v. xiii. p. 424. Mountains of Angus-shire.

4. S. *elongélla* Sm. " radical leaves 3- or 5-cleft, those of the upright short shoots undivided or 3-cleft all bristle-pointed slightly fringed, primary flower-stalks very long simple and naked, calyx pointed, petals obovate." *E. Bot.* t. 2277. Moist rocks, Angus-shire. *Fl.* June.

5. S. *lætevírens* Don, " trailing shoots procumbent elongated, leaves 5- or 3-parted, segments linear acute, calycine segments lanceolate mucronate, petals spathulate emarginate." *Tr. of Linn. Soc.* v. xiii. p. 451; *E. Fl.* v. ii. p. 280. Mountains of Angus-shire, Aberdeenshire and north of Loch Lomond.

14. S. *cæspitósa* L. (*tufted alpine Saxifrage*); root-leaves crowded 3—5-cleft obtuse veiny fringed, lowermost undivided, germen hairy, calyx smoother obtuse, petals roundish-obovate. — α. smaller. S. cæspitosa *L.*: *E. Bot.* t. 794; *Ed. Cat.* p. 12. S. Grœnlandica *Gunn. Norv.* v. ii. p. 80. t. 7. f. 1. — β. larger. *E. Fl.* v. ii. p. 274. S. decipiens *Ehrh.*: *Sternb. Saxifr.* p. 55. t. 23. S. palmata *E. Bot.* t. 455.

Mountains, rare. Rocks of Twll dû, and Cwm-Idwell, N. Wales. Brandon, co. Kerry. Ben-na-bord, Aberdeenshire: *Dr. Graham.* Ben Nevis: *J. Woods, Esq.* *Fl.* July. ♃ — This I believe to be quite distinct from *S. hypnoides*, though nearly allied to it. The procumbent shoots are very short or wholly wanting; the flowers are fewer; the leaves almost all 3-cleft and with obtuse segments. Valuable remarks, on this and the preceding species, will be found in the third edition of this work, pp. 199, 200, and 201.

15. S. **muscoídes* Wulf. (*mossy alpine Saxifrage*); radical leaves crowded linear obtuse entire and trifid, stem nearly naked few-flowered, petals oblong-obtuse (buff-coloured) a little longer than the superior calyx. *E. Bot.* t. 2314; *Ed. Cat.* p. 12.

Mountains above Ambleside, Westmoreland: *Huds.* (*D. Don.*) — β. Highlands of Scotland (?): *Mr. J. Don.* *Fl.* May. ♃. — A very dubious native.

16. S. *pedatífida* Ehrh. (*pedatifid-leaved Saxifrage*); lower leaves and those of the rather short sterile shoots upon very long footstalks divided into 3 deep linear-lanceolate acute

spreading segments the lateral ones bifid, panicle cymose, calyx superior as long as the germen. *E. Bot.* t. 2278; *Ed. Cat.* p. 12.

Rocks near the head of Clova, Angus-shire: *G. Don* (and found by him only). *Fl.* May. ♃. — A distinct species, which does not appear to be noticed in Sternberg's valuable work, though coming near his *S. ladanifera* and *S. pentadactylis.*

2. Chrysosplénium *Linn.* Golden-Saxifrage.

Cal. superior, 4—5-cleft, somewhat coloured. *Cor.* 0. *Capsule* with 2 beaks, many-seeded. — Named from χρυσος, *gold*; and σπλην, the *spleen*; a disease, for which this plant was supposed to be a cure.

1. C. *alternifólium* L. (*alternate-leaved Golden-Saxifrage*); leaves alternate, lower ones subreniform upon very long footstalks. *E. Bot.* t. 54; *Ed. Cat.* p. 14.

Boggy places among rocks and springs. Cheshire and Norfolk: rare; —more frequent in Scotland. Rosslyn Woods, Bilston-burn, and St. Bernard's Well, Edinburgh: Castlemilk glen, and Beetle's-burn, vale of Clyde. Near Belfast, Ireland. *Fl.* March, April. ♃. — 4—5 inches high, branched near the summit. *Leaves* petiolate, crenate. *Flowers* in small *umbels*, deep yellow, mostly with 8 *stamens.*

2. C. *oppositifólium* L. (*common Golden-Saxifrage*); leaves opposite cordato-rotundate. *E. Bot.* t. 490; *Ed. Cat.* p. 4.

Sides of rivulets in shady places, common. Abundant near the source of rivulets in very alpine situations, in the Highlands. *Fl.* Apr. —July. ♃. — Generally more branched at the base than the last, of a paler colour in all its parts. *Stamens* usually 8.

Ord. XXXVIII. UMBELLIFERÆ.
(See Tabs. I. and II.)

Calyx adherent with the *Ovaries*, 5-toothed, teeth minute, often obsolete. *Corolla* of 5, often bifid or obcordate, *petals*, sometimes very unequal, the outer ones the largest. *Stamens* 5, alternate with the petals, inserted on the under-side of a thick fleshy disk, at the base of the styles. *Styles* 2. *Stigmas* entire. *Achenia* or *Carpels* 2, combined, attached to a central stalked *receptacle*, separating when ripe. *Seed* solitary, pendulous. *Embryo* minute, in the base of a horny *albumen; radicle* pointing to the *hilum.* — Herbs. Leaves *alternate, generally compound and embracing the stem with their sheathing bases.* Flowers *in umbels.* — This Order contains many poisonous plants, especially such species as grow in watery places; numerous esculent and aromatic ones, usually inhabiting dry situations. Several yield gum-resins; as the *Ferula Assafœtida* and *Bubon Galbanum.*

This is so extensive and so perfectly natural a group, and the genera which compose it are with such difficulty distinguished the one from the other, that I shall here offer a few remarks, with a view to render the study of them more easy to the young botanist. All our Umbelliferous plants are herbaceous; they have *leaves* which are alternate, mostly very compound, with dilated and sheathing bases. But what characterises them best, and gives the name to the Natural Family, is the circumstance of the *flowers*, in almost every instance, being arranged in compound *umbels*, with or without *involucres*. The *germen* is inferior (enveloped by, and adherent with the tube of the calyx), 2-celled, presenting, just below where the petals are inserted, a thickened margin, or sometimes teeth or segments, the only free part of the calyx. There are 5 *petals*, entire or obcordate, often bifid, with an incurved point between the 2 lobes, equal or unequal. *Stam.* 5, spreading: these, as well as the petals, are inserted beneath the dilated base of the styles. *Styles* 2, united at their base into a 2-lobed, fleshy disk, which covers the top of the germen. *Stigmas* capitate. *Fruit* (Tabs. I. and II.) of 2, single-seeded, indehiscent *pericarps*, or *carpels*, as they may be conveniently called, eventually separating, each with its style, and for a time suspended by a central, filiform, and generally bipartite *column* or *axis* (Tab. I. f. 14 *a*, and Tab. II. f. 16, *a*). They are variously shaped, and variously marked with longitudinal *ribs* or *ridges*. The number of these ribs upon each *carpel* is 5 (Tab. I. f. 9, *a*, *b*, &c.) more or less apparent, sometimes obliterated. Within the coat of the carpels, generally in the interstices, are often longitudinal ducts, or canals, replete with an oily or resinous substance, and usually coloured; so that they are sometimes visible without dissection. (Tab. II. f. 5. *b*. and f. 10. *a*. *b*.) These are called *vittæ*. The parts on which the marks of distinction depend are assuredly minute, and in vain will the student hope to make himself master of this extensive and important tribe of plants, without devoting his earnest attention to the subject, and carefully examining the structure of the flowers, and more especially of the fruit.

I. *Umbels simple or imperfectly compound.* Gen. 1—3.

1. Hydrocótyle *Linn.* White-rot. (Tab. I. f. 1.)

Fruit of 2 flat nearly orbicular lobes or *carpels*, each with 5, more or less distinct, filiform ribs. *Cal.-teeth* obsolete. *Pet.* ovate. (Leaves *orbicular*, *peltate*.) — Named from ὑδωρ, *water*, and κοτυλη, a *cup* or *vase*. The leaves are a little depressed and stalked in the centre, and may thence somewhat resemble a cup or platter. The plant grows in watery places.

1. H. *vulgáris* L. (*common White-rot, Marsh Pennywort*); leaves peltate orbicular somewhat lobed and crenate, heads of about 5 flowers. *E. Bot.* t. 751; *Ed. Cat.* p. 7.

Bogs, marshes, and banks of lakes, frequent. *Fl.* May, June. ♃. — *Stems* creeping; producing, from their joints, clusters of petiolated *leaves* and simple *flower-stalks*, which are much shorter than the petioles. *Flowers* often with a reddish tinge.

2. Sanícula *Linn.* Sanicle.
(Tab. I. f. 2.)

Fruit ovate, densely clothed with hooked prickles. *Cal.-teeth* leafy. *Pet.* erect, obovate, with long inflected points: (some flowers abortive). — Name derived from *sano*, to *heal*; because this plant was once supposed "to make whole and sound all inward wounds and outward hurts."

1. S. *Europæa* L. (*Wood Sanicle*); lower leaves palmate with the lobes trifid inciso-serrate, flowers all sessile. *E. Bot.* t. 98; *Ed. Cat.* p. 12.

Woods and thickets, frequent. *Fl.* May, June. ♃. — *Leaves* mostly radical, finely serrated, almost ciliated. *Heads of flowers* small, white.

(The well-known garden plant *Astrantia major* L. (*Sm. Ex. Fl.* t. 76.) was observed, about 1828, by *Mr. J. Lloyd*, "by the side of a road in a wood, and in such a situation as the *Sanicula* is usually found in, between Whitbourne, Herefordshire, and Malvern: and, in 1840, in a wood above Stolvesay Castle, near Ludlow, by *Mr. D. Sharpe*." But I fear it has no claim to be considered a native.)

3. Eryngium *Linn.* Eryngo.
(Tab. I. f. 3.)

Fruit ovate, clothed with chaffy scales or bristles. *Cal.-teeth* leafy. *Pet.* erect, oblong, with long inflected points.—(Involucre *of many leaves.* Flowers *in a compact head* upon a scaly receptacle.) — Name: ερυγγιον, of Dioscorides.

1. E. *maritimum* L. (*Sea-Eryngo, Sea-Holly*); radical leaves roundish plaited spinous stalked, upper ones lobed palmated amplexicaul rigid, involucres longer than the heads, scales of the receptacle 3-cleft. *E. Bot.* t. 718; *Ed. Cat.* p. 5.

Sandy sea-shores, frequent. *Fl.* July, Aug. ♃. — Whole plant very stiff and rigid, glaucous. *Leaves* and *involucres* beautifully veiny. *Flowers* blue, in dense heads, having at first sight more the appearance of a *compound flower* (of the Class *Syngenesia*) than of an *umbelliferous plant*. The *roots* are well tasted, when candied, and they are considered stimulating and restorative, having been so employed in the days of Shakspeare. Linnæus recommends the blanched shoots as a substitute for *Asparagus*.

2. E. * *campéstre* L. (*Field Eryngo*); radical leaves subternate, lobes pinnatifid, cauline ones bipinnatifid amplexicaul all with spinous teeth, involucres lanceolate spinous, scales of the receptacle undivided. *E. Bot.* t. 57; *Ed. Cat.* p. 5.

Very rare; found, in Ray's time, at Devil's Point, Stonehouse, near Plymouth, whence *Mr. Banks* has sent me beautiful specimens, and where it still struggles for existence in consequence of the alterations made for the new victualling yard: *Rev. W. S. Hore.* Near Daventry. Sandy fields, near Lismore, Waterford, Ireland. *Fl.* July, Aug. ♃.

II. *Umbels compound or perfect.* Gen. 4—40.

A. *Fruit not prickly nor beaked; laterally compressed.* Gen. 4—18.

4. Conium *Linn.* Hemlock.
(Tab. I. f. 4.)

Fruit broadly ovate. *Carpels* with 5 prominent waved or crenated ribs. *Cal.-teeth* obsolete. *Petals* obcordate. (Involucre *of few leaves;* partial *of 3 leaves on one side.*) — Name, κωνειον, of Theophrastus, from κωνος, a *cone*, or a *top*, whose whirling motion resembles the giddiness produced on the human constitution by the poisonous juice of this plant.

1. C. *maculátum* L. (*common Hemlock*); stem glabrous spotted, leaves tripinnate, leaflets lanceolate pinnatifid with acute and often cut segments. *E. Bot.* t. 1191; *Ed. Cat.* p. 4.

Waste places, banks, and under walls, not unfrequent. *Fl.* June, July. ♂. — *Root* fusiform. *Stem* 2—4 feet high, striated and spotted with purple, much branched upwards. *Leaves* large, much divided, when bruised extremely fetid, yielding an extract which has been extensively employed in the cure both of scrophulous and cancerous maladies, and for the purpose of lowering the pulse. So powerful a plant should be carefully discriminated from its allies; and it is best distinguished by its spotted stem, fetid smell, and by the unilateral partial involucres, together with the waved ridges of the fruit.

5. Physospérmum *Cuss.* Bladder-seed.
(Tab. I. f. 5.)

Fruit of 2 ovato-globose lobes or *carpels*, each with 5 indistinct ribs, and single *vittæ* between them. *Cal.-teeth* evident. *Pet.* obcordate. (Involucre *and* partial involucre *of many leaves.*) — Named from φυσα, a *bladder*, and σπερμα, a *seed*, from the loose covering to the seed.

1. P. *Cornubiénse* (*Cornish Bladder-seed*); *Ed. Cat.* p. 10. P. aquilegifolium *Koch.* P. commutatum *Spreng. Umbell. Spec.* p. 22. t. 4. f. 7, 8. Danaa aquilegifolia *All. Ped.* n. 1392. t. 63. Ligusticum aquilegifolium *Willd. Sp. Pl.* v. i. p. 1425. L. Cornubiense *L. Sp. Pl.* p. 359; *E. Bot.* t. 683. Smyrnium tenuifolium nostras *Dill. in Raii Syn.* p. 209. t. 8. (*fig. bad.*)

Bushy fields in Cornwall; about Bodmin; Wood on the Devonshire side of the Tamar, through which the road ascends from the "Long" or "New" Bridge towards Tavistock: *Rev. W. S. Hore. Fl.* July. ♃. — *Stem* a foot and a half to 2 feet high, erect, striated, glabrous, panicled above. *Leaves* mostly radical, on long stalks, triternate; *leaflets* wedge-shaped, cut and laciniated or deeply tripartite, the segments acute, glabrous or minutely downy on the veins and margins. *Cauline leaves* few, small, less divided, the segments longer and slenderer. *Umbels* on long terminal stalks, of 10—12 spreading lax rays.

Universal and *partial involucres* of from 1—4 or 5 lanceolate, somewhat membranaceous leaves. *Partial umbels* spreading, rather lax, of many *flowers;* of which several in the centre bear only *stamens* and are consequently abortive. *Cal.* evident. *Petals* rather long, almost unguiculate, white. *Germen* ovato-globose, laterally compressed, furrowed; *ovules* very loose within. *Fruit* almost globose, laterally compressed, and contracted between the *carpels* so as to be didymous. *Carpels* reniform, globose, with 5 *ridges:* the coat crustaceous and so loose that the *seed* is free within. In the first edition of this work, I have fully given my reasons for referring to this plant the *P. aquilegifolium* of *Koch.*

6. Smýrnium *Linn.* Alexanders. (Tab. I. f. 6.)

Fruit of 2 nearly globose lobes or carpels, each with 3 dorsal prominent sharp ribs, the two lateral ones obsolete. Several *vittæ* in the interstices. *Pet.* lanceolate or elliptical, with an inflected point. — Named from *σμυρνα*, synonymous with *μυρρα, myrrh,* from the scent of the juice of some species.

1. S. *Olusátrum* L. (*common Alexanders*); cauline leaves ternate petiolate serrate. *E. Bot.* t. 230; *Ed. Cat.* p. 13.

Waste ground and among ruins, especially near the sea; not unfrequent. *Fl.* May, June. ♂. — *Stem* 3—4 feet high, very stout, furrowed. *Leaves* bright yellow-green; twice (or the lower ones thrice) ternate, with a very broad membranous base; *leaflets* very large, broadly ovate, lobed and serrated. *Flowers* yellow-green, in very dense, numerous, rounded *umbels*. *Involucres* none. *Fruit* almost black when ripe. — Aromatic, but too strong and pungent to be agreeable. It was formerly used as a potherb, and takes its specific name from *olus*, a *potherb*, and *ater, black*; in allusion, apparently, to the black colour of the fruit.

7. Cicúta *Linn.* Cowbane. (Tab. I. f. 7.)

Fruit rotundato-cordate of 3 almost globose lobes or *carpels,* with 5 broad flattened ribs, and evident single *vittæ* in the interstices. *Cal.-teeth* acute. *Pet.* obcordate. (Partial involucre *of many leaves.*) — Name: *Cicuta* was a term given by the Latins to those spaces between the joints of a reed of which their pipes were made; and the stem of this plant is equally formed of hollow articulations.

1. C. *virósa* L. (*Cowbane* or *Water Hemlock*). *E. Bot.* t. 479; *Ed. Cat.* p. 4.

In ditches, and about the margins of rivers and lakes, in England and the Lowlands of Scotland; but not very frequent. *Fl.* July, Aug. ♃. — *Stem* 3—4 feet high, branched. *Root* and lower part of the *stem,* which is very large, hollow, and divided by transverse partitions into large cells. *Leaves* biternate, the *radical* ones pinnated; *leaflets* lanceolate, serrated. *Umbels* pedunculated. — A deadly poison to man, but cattle are said to eat the leaves with impunity.

8. A'PIUM *Linn.* Celery.
(Tab. I. f. 8.)

Fruit roundish-ovate, didymous. *Carpels* with 5 slender ribs, with *vittæ* in the flat interstices. *Cal.-teeth* obsolete. *Pet.* roundish, entire, with a small involute point. (Involucres 0.)—Name: *apon, water,* in Celtic, from the places where the plant grows.

1. A. *gravéolens* L. (*Smallage* or *wild Celery*). *E. Bot.* t. 1210; *Ed. Cat.* p. 1.

Marshy places, especially near the sea; not unfrequent in England. Musselburgh, Scotland. *Fl.* Aug. ♂. — *Stem* furrowed, 2 feet high. *Leaves* ternate; *leaflets* large, wedge-shaped, lobed and cut at the extremity: the lower leaves are upon long stalks with their leaflets rounder and truncate at the base. *Umbels* often sessile; peduncled ones of few *flowers.* — This is the origin of our *garden Celery.*

9. PETROSELÍNUM *Hoffm.* Parsley.
(Tab. I. f. 9.)

Fruit ovate. *Carpels* with 5 slender ribs, and *vittæ* in the interstices. *Cal.-teeth* obsolete. *Pet.* roundish, with a narrow incurved point. (Involucre *of few,* partial *of many, leaves.*)—Name: πετρος, a *stone;* being a native of rocky or stony places.

1. P. * *satívum* Hoffm. (*common Parsley*); leaves decompound shining, lower leaflets ovato-cuneate trifid and toothed, upper ones lanceolate nearly entire, partial involucres filiform. *Borr. in E. Bot. Suppl.* t. 2793; *Ed. Cat.* p. 9. Apium Petroselinum *L.*

Frequent on old walls, especially in the south-west of England. Blarney Castle, near Cork. *Fl.* June, July. ♂.— I introduce this at the suggestion of my friend Mr. Edward Forster, who remarks that it has a stronger claim to a place in a British Flora than many plants that are universally admitted.

2. P. *ségetum* Koch (*Corn Parsley*); radical leaves pinnated, leaflets ovate lobed cut and serrated, upper leaves with linear very imperfect leaflets, rays of the umbels few and unequal. *Ed. Cat.* p. 9. Sison segetum *L.*: *E. Bot.* t. 228.

Moist fields, chiefly on calcareous soil, in several parts of the middle and south of England. Sea-shore, between Bognor and Little Hampton: and between Esher and West Moulsey, Surrey. *Fl.* Aug. ☉ or ♂.— 1 foot to 1½ high, wiry, spreading, branched. *Leaves* few, mostly radical. *Universal involucre* of about 2 leaves. *Fruit* ovate, strongly ribbed.

10. TRÍNIA *Hoffm.* Honewort.
(Tab. I. f. 10.)

Dicœcious. *Fruit* ovate. *Carpels* with 5 prominent ribs, and single *vittæ* beneath them. *Cal.-teeth* obsolete. *Pet.* of the *barren fl.* lanceolate with a narrow involute point; of the

fertile ovate, with a short inflected point.—Named in honour of *Dr. C. B. Trinius*, a learned Russian botanist, author of "*Species Graminum*," &c.

1. T. *glabérrima* Hoffm. (*glabrous Honewort*); glabrous, leaves tripinnate, leaflets linear filiform, involucre none. *Ed. Cat.* p. 14. Pimpinella dioica *E. Bot.* t. 1239. Seseli pumilum *L.* (*Sm.*)

Limestone, rare. Near Bristol on St. Vincent's rocks; at Uphill, Somersetshire; Whorle Hill, Somerset; Bury Head, Devon: *Mr. Borrer.* Near Athboy, county of Meath, Ireland. *Fl.* May, June. ♃. Whole herb glaucous-green, pale, remarkable for the narrow segments of its *leaves*, and its diœcious *flowers*. *Root* fusiform.

11. Helosciádium *Koch.* Marsh-wort.
(Tab. I. f. 11.)

Fruit broadly ovate or oblong. *Carpels* with 5, slender, prominent ribs, with single *vittæ* in the interstices. *Cal.-teeth* often obsolete. *Pet.* ovate, obtuse with an apiculus.—Name: ἕλος, a *marsh*, and σκιαδιον, an *umbel*.

1. H. *nodiflórum* Koch (*procumbent Marsh-wort*); stem procumbent, leaves pinnate, leaflets ovate subequally serrated, umbels sessile opposite to the leaves. *Ed. Cat.* p. 6. Sium nodiflorum *L.*: *E. Bot.* t. 639.

Sides of lakes and rivulets. *Fl.* July, Aug. ♃.—1½—2 feet high. *Leaflets* of the radical *leaves* sometimes with a lobe at the base, on the upper margin. *Petals* slightly incurved at the apex.

2. H. *répens* Koch (*creeping Marsh-wort*); stem creeping, leaflets broadly ovate inciso-dentate, umbels on peduncles opposite to the leaves. *Ed. Cat.* p. 6. Sium repens *L.*: *E. Bot.* t. 1431.

Boggy meadows and watery places in Oxfordshire, Cambridgeshire, and Bedfordshire. Side of the Fergus, above the bridge of Ennis; and at Guillon, Scotland. *Fl.* July, Aug. ♃.—*Stems* 6—10 inches long. *Leaflets* 5—9. Scarcely distinct from H. *nodifl.*

3. H. *inundátum* Koch (*least Marsh-wort*); stems creeping, lower leaves capillaceo-multipartite, upper ones pinnatifid, umbels generally of 2 rays. *Ed. Cat.* p. 6. Sium inundatum *Wiggers.*: *E. Fl.* v. ii. p. 58. Sison inundatum, *E. Bot.* t. 227.

Lakes and pools that are dried up in summer. *Fl.* May, July. ♂.(?) ☉.(?)—*Stems* 4—6 inches long; most of them capillaceo-multifid, with the segments small and lanceolate. *Partial umbels* minute, scarcely longer than their *involucres*. *Univ. involucre* none. *Fruit* large in proportion to the size of the plant, striated.

12. Síson *Linn.* Bastard Stone-Parsley.
(Tab. I. f. 12.)

Fruit ovate. *Carpels* with 5 ribs, and single *vittæ* in the in-

terstices. *Cal.-teeth* obsolete. *Pet.* broadly obcordate, deeply notched and curved, with an inflected point. (Involucres *of few leaves:* partial *subdimidiate.*) — Name *sizun,* signifying in Celtic a *running brook;* some of the plants formerly placed in this genus delighting in such situations.

1. S. *Amómum* L. (*Hedge Bastard Stone-Parsley*). *E. Bot.* t. 954; *Ed. Cat.* p. 13.

Chalky, rather moist ground, under hedges, in England. Near Coldstream, Scotland. *Fl.* Aug. ☉. or ♂. — 2—3 feet high. Lower *leaves* pinnated with lobed, inciso-serrate, ovate *leaflets*; upper ones cut into narrow segments. *Petals* broad. *Fruit* roundish-ovate. — Smith says that the seeds are pungent and aromatic; and that they and the whole plant, when bruised, emit a strong smell resembling that of *bugs.*

13. Ægopódium *Linn.* Gout-Weed.
(Tab. 1. f. 13.)

Fruit oblong. *Carpels* with 5 slender ridges, without *vittæ. Cal.-teeth* obsolete. *Pet.* obcordate, with an inflexed point. (Involucre 0.) — Named from αιξ, αιγος, a *goat,* and πους, a *foot;* the leaves being cleft something like the foot of that animal.

1. Æ. *Podagrária* L. (*Gout-weed*). *E. Bot.* t. 940; *Ed. Cat.* p. 1.

Gardens and wet places. *Fl.* May, June. ♃. — A foot and a half high. *Radical leaves* twice ternate, upper ones ternate; *leaflets* ovate, acuminate, unequally serrated. The creeping *root* is pungent and aromatic.

14. Cárum *Linn.* Caraway.
(Tab. I. f. 14.)

Fruit oblong. *Carpels* with 5 ribs, and single *vittæ* in the interstices. *Cal.* obsolete. *Pet.* obcordate, with an inflected point. — Name derived, according to Pliny, from that of the country, *Caria.*

1. C. *Cárui* L. (*common Caraway*); not fusiform, stem branched, partial involucre none, universal scarcely any. *E. Bot.* t. 1503; *Ed. Cat.* p. 3.

Meadows and pastures, in several places both in England and Scotland. *Fl.* June. ♂. — *Stem* 1—2 feet high. *Leaves* doubly pinnated, cut into linear segments, of which the lowermost are decussate. *Umbels* dense. *Carpels* agreeably aromatic, and well known in the kitchen and Pharmacopeia, under the name of *Caraway seeds.*

2. C. *Bulbocástanum* Koch (*tuberous Caraway*); root tuberous, general and partial involucres of many linear-lanceolate leaves, leaves tripinnate, their segments linear acute. Bunium *L.: Bab. in E. Bot. Suppl.* t. 2862. (*not Huds. nor Curtis.*)

Fields, Cherry Hinton, Cambridgeshire, and over the whole of the chalk district from Bygrave, near Baldock, in Hertfordshire, to the

neighbourhood of Dunstable (20 miles): so plentiful near Baldock, that the farmers turn their pigs upon the fallows to feed upon the root: *Rev. W. H. Coleman. Fl.* June. ♃. — A very interesting addition to the British Flora, and for which the *Bunium flexuosum* had formerly been mistaken.

3. C. *verticillátum* Koch (*whorled Caraway*); leaflets all capillary in short whorled segments. *Ed. Cat.* p. 3. Sium *E. Fl.* v. ii. p. 59. Sison *L.: E. Bot.* t. 395.

In England, very rare; near Carlisle: *T. C. Heysham, Esq.*, 1836. In the flat parts of Wales; Killarney; and near Bantry Bay, Ireland. Extremely abundant in moist hilly pasturages on the West of Scotland, especially near the sea. *Fl.* July, Aug. ♃. — *Leaves* mostly radical; a long common *petiole* bears a number of opposite multifid capillary *leaflets*, whose spreading makes them appear whorled. *Stem* a foot high, slender. *Umbels* few, terminal. *Involucre* very small.

15. Búnium *Koch.* Earth-nut. (Tab. I. f. 15.)

Fruit oblong, crowned with the conical bases of the nearly straight styles. *Carpels* with 5 slender, obtuse ribs, and many *vittæ*. *Cal.-teeth* obsolete. *Pet.* obcordate, with an inflected point. (Involucre 0: partial *of few leaves.*) — Named from βουνος, a *hill*, where the plant delights to grow.

1. B. *flexuósum* With. (*common Earth-nut*). *E. Bot.* t. 988; *Ed. Cat.* p. 2. B. denudatum *DC.* B. Bulbocastanum *Huds.* (*not* L.): *Curt. Fl. Lond.* t. 24. Conopodium *Koch.*

Woods and pastures, frequent. *Fl.* May, June. ♃. — *Root* a solitary *tuber*, much sought after by children and pigs. *Stem* solitary, erect, flexuose, with few *leaves* much divided into very slender, linear, or almost setaceous segments. *Fruit* oblong, moderately ribbed, a little narrower upwards, crowned with the straight *styles*, which have conical, very tumid bases.

16. Pimpinélla *Linn.* Burnet-Saxifrage. (Tab. I. f. 16.)

Fruit ovate, crowned with the swollen base of the reflexed styles. *Carpels* with 5 slender ribs, the interstices furrowed, with many *vittæ*. *Cal.-teeth* obsolete. *Pet.* obcordate, with an inflected point. (Involucres 0.) — Name altered, as Linnæus informs us, from *bipennula*, or twice-pinnated, in allusion to the divisions of the leaves.

1. P. *Saxífraga* L. (*common Burnet-Saxifrage*); radical leaves pinnate their leaflets roundish sharply serrate or cut, those of the stem bipinnate linear. *E. Bot.* t. 407; *Ed. Cat.* p. 10.

Dry pastures, frequent. *Fl.* July, Aug. ♃. — *Stem-leaves* few; lower and *radical* ones upon long stalks. *Leaflets* of the latter often deeply and pinnatifidly cut, and sometimes even bipinnatifid.

2. P. *mágna* L. (*greater Burnet-Saxifrage*); leaves all pinnate, leaflets ovato-serrate subincised the terminal one (rarely the lateral ones) 3-lobed. *E. Bot.* t. 408; *Ed. Cat.* p. 10.

Shady places, on a chalky or limestone soil, in several parts of England. Near Cork, Mucruss and Killarney. *Fl.* July, Aug. ♃. — Larger in all its parts than the foregoing, and the *leaflets* of the upper *leaves* much broader and less divided.

17. Síum *Linn.* Water-Parsnep.
(Tab. 1. f. 17.)

Fruit ovate or globose, subdidymous, crowned with the depressed base of the reflexed styles. *Carpels* with 5, rather obtuse ribs, and many *vittæ* in the interstices. *Cal.-teeth* small or obsolete. *Pet.* obcordate, with an inflected point. (Partial involucre *of many leaves.*) — Name: according to Théis, from the Celtic word, *siw, water.*

1. S. *latifólium* L. (*broad-leaved Water-Parsnep*); stem erect, leaves pinnated, leaflets oblongo-lanceolate equally serrated, umbels terminal. *E. Bot.* t. 204; *Ed. Cat.* p. 13.

River-sides, ditches and watery places; rather rare in Scotland. *Fl.* July, Aug. ♃. — *Stems* 3—4 feet high, furrowed. *Fruit* small. *Leaflets* distant, 5—9 on a leaf.

2. S. *angustifólium* L. (*narrow-leaved Water-Parsnep*); stem erect, leaflets unequally lobed and serrated, umbels pedunculate opposite to the leaves. *E. Bot.* t. 139; *Ed. Cat.* p. 13.

Ditches and rivulets, frequent; not common in Scotland. *Fl.* July. Aug. ♃. — Smaller than the last. *Stem* striated: *leaflets* of the upper *leaves* most unequal and laciniated, *radical leaves* ovate, their lowermost leaflets distant.

18. Bupleúrum *Linn.* Hare's Ear.
(Tab. I. f. 18.)

Fruit ovato-oblong, crowned with the depressed base of the styles. *Carpels* with 5, more or less prominent ribs, with or without *vittæ*. *Cal.-teeth* obsolete. *Pet.* roundish, retuse with an involute point. (Leaves *undivided.*) — Named from βους, an *ox*, and πλευρον, a *rib*, in allusion to the ribbed leaves of some species.

1. B. *aristátum* Bartl. (*narrow-leaved Hare's Ear*); universal and partial involucre each about 4—5-leaved, leaflets lanceolate cuspidate longer than the umbels, leaves linear 3-nerved, stem panicled. B. Odontites *Ed. Cat.* p. 2; *E. Bot.* t. 2468 (*not* L.)

Rocks in the neighbourhood of Torquay. *Fl.* July. ☉. — A small plant, 3—6 inches or more high, with rigid, striated, pale yellow-green, pungent *leaves*. *Flowers* in terminal, much involucrated *umbels*.

2. B. *rotundifólium* L. (*common Hare's Ear* or *Thorow-*

wax); universal involucre wanting, partial involucres mucronate, leaves perfoliate roundish-oval. *E. Bot.* t. 99; *Ed. Cat.* p. 2.

Corn-fields in England, on chalky soil. Abundant about Swaffham, and in Cambridgeshire. Streatly, Berkshire. *Fl.* July. ☉.

3. B. *tenuíssimum* L. (*slender Hare's Ear*); stem very much branched, leaves linear, umbels lateral very minute few-flowered shorter (usually) than the setaceous involucres. *E. Bot.* t. 478; *Ed. Cat.* p. 2.

Salt-marshes on the south and east coasts of England. Banks of the Dee, below Chester: *Mr. Jas. Price* and *Mr. J. E. Bowman*. *Fl.* August, Sept. ☉. — *Stems* very wiry, slender. *Leaves* remote, very sharp, mostly 3-nerved. *Umbels* inconspicuous, often sessile, axillary.

4. B. **falcátum* L. (*falcate-leaved Hare's Ear*); stem erect panicled, radical leaves obovate on long stalks, upper sessile linear-lanceolate, partial involucre of 5 lanceolate leaves as long as the flowers, universal 5-leaved. *Corder in E. Bot. Suppl.* t. 2763; *Ed. Cat.* p. 2.

Norton Heath, near Ongar, Essex, growing by the road-side for nearly a mile. *Mr. T. Corder, Jun.* *Fl.* Aug. ♃. — It is observed by Mr. Forster, that Gerarde and Parkinson mention this as indigenous to Britain, but coupled with other species, such as *B. longifolium* and *B. rigidum* L., which have never been considered as aboriginal natives by any other author; so that the authority of these writers, in this instance, is perhaps little to be depended upon.

B. *Fruit not prickly nor beaked, ovate or elliptical, rounded on a transverse section.* Gen. 19—26.

19. Œnánthe *Linn.* Water-Dropwort.
(Tab. I. f. 19.)

Fruit ovato-cylindrical, crowned with the straight styles. *Carpels* more or less corky, with 5 blunt, convex ribs, and single *vittæ* in the interstices. *Cal.-teeth* lanceolate. *Pet.* obcordate, with an inflected point, radiant. (Partial involucre *of many rays.*) Flowers *of the circumference on long stalks and sterile: those of the centre sessile, or nearly so, and fertile.* — Named from οινη, a *vine*, and ανθος, a *flower*, alluding to the vinous smell of the blossoms.

1. Œ. *fistulósa* L. (*common Water-Dropwort*); root stoloniferous, stem-leaves pinnated, their main stalk as well as stem cylindrical fistulose, umbels of very few rays. *E. Bot.* t. 363; *Ed. Cat.* p. 9.

Ditches and rivulets, common. *Fl.* July, Aug. ♃. — *Plant* 2—3 feet high, remarkably tubular and fistulose. *Stem-leaves* distant; the *leaflets*, which are few and small, are confined to the upper extremity of the leaves. *Umbels* small; the fruit large, turbinate, corky, tipped with the long rather diverging styles, and forming dense globose heads as large as a marble. *Univ. involucre* often wanting.

2. Œ. *pimpinelloides* L. (*Parsley Water Dropwort*); leaflets of the radical leaves wedge-shaped cloven, those of the stem linear entire very long, universal involucre of several linear leaves. *E. Bot.* t. 347; *Ed. Cat.* p. 9.

Salt-marshes, not unfrequent; less common in Scotland, and principally confined to the West coast. *Fl.* July. ♃. — 2 feet or more high. *Umbellules* thickly crowded, forming almost sphærical heads with their nearly elliptical fruit, which is tapering at the base, and striated, but not corky.

3. Œ. *peucedanifólia* Poll. (*Sulphur-weed Water-Dropwort*); leaflets all linear, universal involucre none, knots of the root sessile elliptical. *Sm.: E. Bot.* t. 348; *Ed. Cat.* p. 9.

Fresh-water ditches and bogs in Oxfordshire, Bedfordshire, and Suffolk. In Sussex. *Fl.* June. ♃. — Allied to the last; found only, as it appears, near fresh water. My specimens are from the Sussex station, and far from perfect or satisfactory. Whether this and the preceding be distinct or not, they are certainly not the species so called by De Candolle and other continental writers. The *Œ. peucedanifolia* of Sm. is referred to *Œ. silaifolia* of Bieb. The *Œ. pimpinelloides* of DC., of which specimens are distributed by the Unio Itineraria, from Sardinia, has the fruit cylindrical, with a remarkably truncated callous base.

4. Œ. *crocáta* L. (*Hemlock Water-Dropwort*); leaves triquadripinnate, leaflets cuneato-ovate cut and serrated, those of the upper leaves narrower, general involucre of few leaves. *E. Bot.* t. 2313; *Ed. Cat.* p. 9. Œ. apiifolia *Brot.: Hook. Br. Fl.* ed. 2. p. 129.

Watery places, by ditches and rivers; frequent. *Fl.* July. ♃. — *Root* consisting of large fusiform *tubers*. *Plant* 3—5 feet high: different from all the preceding in the great breadth of its *leaflets*, and the large, much ramified *stems*, full, it is said, of a poisonous *yellow* juice. But this juice is by no means constantly present, as ascertained by *Mr. Banks*, *Dr. Johnston* and many others: hence appears to have arisen another species, the *Œ. apiifolia*, differing in no respect from the present but in the colourless nature of the juices.

5. Œ. *Phellándrium* Spreng. (*fine-leaved Water-Dropwort*); leaves decompound nearly uniform with narrow oblong short divaricated segments, peduncles lateral, general involucre scarcely any. *Ed. Cat.* p. 9. Phellandrium aquaticum *L.: E. Bot.* t. 684.

Ditches and pools. *Fl.* July ♃. — *Stem* 2—3 feet high, very thick below, much branched; branches spreading. *Umbels* rather small: mostly perfect in every *flower*.

20. Æthúsa *Linn.* Fool's Parsley.
(Tab. 1. f. 20.)

Fruit ovato-globose. *Carpels* with 5 acutely carinated ribs; interstices deeply acutangular with single *vittæ*. *Cal.-teeth* minute. *Pet.* obcordate, with an inflected point. (Involucre 0:

partial *of* 3 *drooping leaves on one side.*)—Name from αιθω, to *burn*, on account of its acrid quality.

1. *Æ. Cynápium* L. (*common Fool's Parsley* or *lesser Hemlock*); leaves uniform, leaflets wedge-shaped decurrent with lanceolate segments. *E. Bot.* t. 1192; *Ed. Cat.* p. 1.

Fields and gardens. *Fl.* July, Aug. ☉. — 1 ft. high. *Stem* striated, branched, very leafy. *Leaves* glabrous, doubly, or the lower ones trebly, pinnate; segments ovato-lanceolate, variously cut. *Umbels* terminal, on long stalks. *Umbellules* small, distant. *Universal involucre* none; *partial involucres* of 3, long, pendent leaves all on one side, by which this is is readily known from all other *umbelliferous plants*. — The smell is nauseous, and it is esteemed very unwholesome.

21. Fœnículum *Hoffm.* Fennel. (Tab. II. f. 1.)

Fruit oblong. *Carpels* with 5 prominent, obtuse, keeled ribs, with single *vittæ* in the interstices. *Cal.-teeth* obsolete. *Pet.* roundish, the involute segment obtuse. (Involucres 0.) — Named from *fœnum*, *hay*, its smell having been compared to that of hay.

1. F. *vulgáre* Gærtn. (*common Fennel*); leaves biternate, leaflets linear-filiform pinnatifid, segments awl-shaped. *Ed. Cat.* p. 5. Anethum Fœniculum *L.*: *E. Bot.* t. 1208. Meum Fœniculum *Spr.*: *E. Fl.* v. ii. p. 85.

Plentiful on chalky cliffs in England, near the sea (*Sm.*), and in the neighbourhood of towns and villages of Norfolk and Suffolk, at short distances from the coast. *Fl.* July, Aug. ♃. — *Stem* 3—4 feet high, fistulose. *Leaves* much divided with very slender segments. *Flowers* dark yellow: the base of the *styles* very glutinous. This is the true *Fennel* of the gardens, and its seeds are esteemed as carminative. The boiled *leaves* are served up with Mackerel on the eastern coasts of England.

22. Séseli *Linn.* Meadow-Saxifrage. (Tab. II. f. 2.)

Fruit oval or oblong, crowned with the reflexed styles. *Carpels* with 5 prominent, corky ribs, with single *vittæ* in the interstices. *Cal.-teeth* acute. *Pet.* obcordate, with an inflexed point. (Partial involucre *of many leaves.*) — Named from σεσελι, originally applied to some plant of this kind.

1. S. *Libanótis* Koch (*mountain Meadow-Saxifrage*); stem furrowed, leaves bipinnatifid, leaflets incised, the segments lanceolate very acute, umbels hemisphærical, universal involucre of many leaves. *Ed. Cat.* p. 13. Athamanta Libanotis *L.*: *E. Bot.* t. 138. Libanotis vulgaris *DC.*

Chalky pastures, very rare. Gogmagog hills, Cambridgeshire (*Ray*); and I possess fine specimens from the same county, through the kind-

ness of my friend, *Prof.* Henslow. Between St. Alban's and Stoney-Stratford. Between Seaford and Cushmere, Sussex: *Rev. W. H. Coleman. Fl.* Aug. ♃. — *Root* fusiform, crowned with the fibrous bases of the old *leaves*. *Stem* 1½—2 feet high. *Fruit* hairy.

23. Ligústicum *Linn.* Lovage.
(Tab. II. f. 3.)

Fruit elliptical. *Carpels* with 5 sharp, somewhat winged ribs, with many *vittæ* in the interstices. *Cal.-teeth* sometimes obsolete. *Pet.* obcordate, with an inflected point. (Partial involucre *of many leaves.*) — Named from *Liguria,* where the old *Ligusticum Levisticum* abounds. From the latter word comes its name, *Lovage.*

1. L. *Scóticum* L. (*Scottish Lovage*); leaves twice ternate, leaflets subrhomboid dentato-serrate not glossy, general involucre of about 6 narrow leaves, calyx 5-toothed. *E. Bot.* t. 1207; *Ed. Cat.* p. 7.

Rocky sea-coasts, in the north of England and Scotland, frequent. *Fl.* July. ♃. — *Root* fusiform, acrid but aromatic. *Stem* nearly simple. *Leaves* mostly radical; *leaflets* large, deeply serrated, rather fleshy. — In the island of Skye this plant is eaten raw and called *Shunis.* — The true *Lovage*, common in gardens, *Ligusticum Levisticum* (now, the genus *Levisticum*), has truly winged *ridges* to the fruit, and fewer *vittæ;* but in other respects is nearly allied to this. It may, however, at once be known by its larger size, branched *stems*, and more compound shining *leaves.*

24. Siláus *Besser.* Pepper-Saxifrage.
(Tab. II. f. 4.)

Fruit oval. *Carpels* with 5 sharp, somewhat winged ribs, with many *vittæ* in the interstices. *Cal.* obsolete. *Pet.* obovate, subemarginate with an inflected point, appendaged; or sessile and truncated at the base. (Partial involucre *of many leaves.*) — Scarcely different from *Ligusticum,* except in its yellowish, nearly entire (not acutely emarginate) petals, truncated and sessile at the base. — Name of dubious origin. It was applied by Pliny to some herb.

1. S. *praténsis* Besser (*meadow Pepper-Saxifrage*); leaves tripinnate, leaflets linear-lanceolate opposite, general involucre of 1 or 2 leaves. *Ed. Cat.* p. 13. Peucedanum Silaus *L.: E. Bot.* t. 2142. Cnidium Silaus *Spr.: E. Fl.* v. ii. p. 91.

Pastures and meadows, not unfrequent in England. Near Oxenford Castle and Kelso, Scotland. *Fl.* July—Sept. ♃. — 1—2 feet high. *Partial umbels* small, distant. *Flowers* pale yellow. Whole plant fetid when bruised, apparently rejected by cattle.

25. Méum *Tourn.* Spignel.
(Tab. II. f. 5.)

Fruit elliptical. *Carpels* with 5 prominent, carinated, equal

ribs, with many *vittæ* in the interstices. *Cal.-teeth* obsolete. *Pet.* entire, elliptical, the point incurved. (Partial involucre *of many leaves.*) — Name supposed to be the μηον of Dioscorides.

1. M. *athamánticum* Jacq. (*Spignel, Meu,* or *Bald-Money*); all the leaflets multipartite, segments bristle-shaped. *E. Bot.* t. 2249; *Ed. Cat.* p. 8. Athamanta Meum *L.* Ligusticum Meum *Crantz.*

Dry alpine pastures, in the north of England and Scotland; especially in the Highlands, frequent. *Fl.* June, July. ♃.—*Root* fusiform, eaten by the Highlanders as an aromatic and carminative: at its summit are the fibrous remains of former years' leaves. *Leaves* long, dark-green, doubly-pinnate. *Flowers* yellowish. — Remarkable for its setaceo-multifid leaf and powerfully aromatic smell. *Bald,* or *Bald-money,* is a corruption of *Balder,* the *Apollo* of the northern nations; to whom this plant was dedicated.

26. Críthmum *Linn.* Samphire. (Tab. II. f. 6.)

Fruit elliptical. *Carpels* spongy, with 5 elevated, sharp, somewhat winged *ribs,* and as well as the *seed,* abundantly marked with *vittæ.* *Cal.-teeth* obsolete. *Pet.* elliptical, entire, involute. (Involucres *of many leaves.*) — Name from κριθη, *barley;* from the resemblance between the fruit of this plant and a grain of barley.

1. C. *marítimum* L. (*Sea Samphire*); leaflets lanceolate fleshy, leaves of the involucre ovate. *E. Bot.* t. 819; *Ed. Cat.* p. 4.

Rocks by the sea-side: rare in Scotland, found only, I believe, on the coast of Galloway and thence northward to Colzean Castle, Ayrshire, and at Aberlady, Haddingtonshire. *Fl.* Aug. ♃.—Whole plant very succulent, pale green. *Leaves* bi-triternate. When the process of drying this plant for the Herbarium is aided by immersion in hot water, a number of white dots, as *Mr. W. Wilson* observes, appear on the surface, which are quite opaque. *Samphire* makes a warm aromatic pickle, and is sold for this purpose in England; being very superior to the *Salicornia herbacea,* which often passes under the name of *Samphire,* and is used in the same way.

C. *Fruit not prickly nor beaked; much and dorsally compressed.* Gen. 27—31.

27. Angélica (including Archangélica) *Linn.* Angelica. (Tab. II. f. 7.)

Fruit flat. *Carpels* with 3 elevated dorsal ribs, the lateral ones spreading into the broad wings of the fruit. *Cal.-teeth* obsolete. *Pet.* elliptical-lanceolate, entire and inflected at the point. — Named *Angelic,* from its cordial and medicinal properties.

1. A. * *Archangélica* L. (*Garden Angelica*); terminal leaflet

lobed, seed free marked with numerous vittæ. *E. Bot.* t. 2561. Archangelica officinalis *Hoffm.: Ed. Cat.* p. 2.

Watery places, rare. Near Birmingham; upon the Thames' side, near Dorking; also in Durham. *Fl.* June—Sept. ♂. — *Stem* 4—5 feet high, and from 1—2 inches in the thickest diameter, glabrous, fistulose. *Leaves* bipinnate; *flowers* greenish-white. — *Candied Angelica*, a well-known article in confectionary, consists of the prepared stalks of this plant, and in that state is agreeable; otherwise, the flavour, though aromatic, is too powerful and pungent to be pleasant. It is called *Archangelica*, αρχη implying its imagined superiority in virtue to the following species.

2. A. *sylvéstris* L. (*wild Angelica*); leaflets equal ovate serrated at the base somewhat lobed, fruit with the interstices of the ridges having single vittæ. *E. Bot.* t. 1128; *Ed. Cat.* p. 1.

Moist woods and marshy places, especially near rivers, frequent. *Fl.* July. ♃. — *Plant* 2—3 feet high. *Stem* purplish, pubescent above, as well as the *umbels*. — Inferior in its qualities to the former species.

28. Peucédanum *Linn.* Hog's Fennel. (Tab. II. f. 8.)

Fruit flat, with a broad thin border. *Carpels* with 3 slightly prominent ribs, 2 lateral ones obsolete, single *vittæ* in the interstices. *Pet.* obovate or obcordate, with an inflected point. (Partial involucre *of many leaves*).—Named from πευκη, a *pine-tree*, and δανος, *dwarf*, on account of a resinous substance, said to exude from some of the species.

1. P. *officinále* L. (*Sea Hog's Fennel*, or *Sea Sulphur-weed*); leaves 5 times tripartite, leaflets linear-filiform flaccid, involucres few linear deciduous. *E. Bot.* t. 1767; *Ed. Cat.* p. 9.

In salt marshes, very rare. In Kent and the coast of Essex. *Fl.* July—Sept. ♃. — Remarkable for its large *umbels* of yellow *flowers*, and its long and extremely narrow *leaflets*. The whole plant, especially the *root*, has a strong sulphureous smell, and the latter yields a resinous substance, reckoned stimulant, but of dangerous internal use.

2. P. *palústre* Mœnch (*Marsh Hog's Fennel*, or *Milk Parsley*); milky, leaves ternately decompound, leaflets opposite pinnatifid, segments linear-lanceolate with a hard point, rays of the umbel rough, involucres of many persistent lanceolate leaves. *Ed. Cat.* p. 9. Selinum palustre, *E. Bot.* t. 229.

Marshy and boggy places, but apparently very local. Yorkshire and Lancashire; about Norwich and the Isle of Ely. Ardincaple on the Clyde. *Fl.* July. ♃ or ♂. — 4—5 feet high, with very compound *leaves*; abounding in a milky juice, which dries to a brown resin. The *root* is said to be used by the Russians instead of Ginger.

3. P. * *Ostrúthium* Koch (*broad-leaved Hog's Fennel*, or *Master-Wort*); leaves biternate, leaflets broadly ovate lobed inciso-serrate, unequal at the base, sheaths very large, fruit with a very broad margin, universal involucre none. *Ed. Cat.* p. 9. Imperatoria Ostruth. *E. Bot.* t. 1380.

Moist pastures in various parts of Scotland ; the plant was formerly much cultivated as a pot-herb. *Fl.* June ♃. — *Flowers* white. *Partial involucres* several, subulate. De Candolle still keeps this distinct from *Peucedanum*, on account of the obsolete calyx.

29. Pastináca *Linn.* Parsnep.
(Tab. II. f. 9.)

Fruit flat, with a broad border. *Carpels* with 3 dorsal and 2 distant marginal ribs on the border, with single filiform *vittæ* in the interstices. *Cal.-teeth* nearly obsolete. *Pet.* roundish, entire, involute, with a sharp point. (Involucres *of few leaves.*) — Differs from *Heracleum* in the entire involute petals and filiform, not clubbed, vittæ. — Name derived from *pastus, food.*

1. P. *satíva* L. (*common wild Parsnep*) ; leaves pinnate downy beneath, leaflets ovate cut and serrated ultimate one 3-lobed. *E. Bot.* t. 556 ; *Ed. Cat.* p. 9.

Borders of fields and pastures in a chalky or gravelly soil. About Cambridge. Crosby, by Liverpool. Abundant in Essex. *Fl.* July. ♂. — *Root* fusiform ; the origin of our garden *Parsnep*. *Leaves* generally shining. *Petals* very convex, involute, yellow.

30. Heracléum *Linn.* Cow-Parsnep.
(Tab. II. f. 10.)

Fruit flat, with a broad border. *Carpels* with 3 dorsal ribs and 2 distant marginal ones, and club-shaped *vittæ* in the interstices. *Pet.* obcordate, point inflected ; outer ones radiant. (Involucre *deciduous ;* partial *of many leaves.*) — Named from *Hercules*, who is said to have brought this or some allied plant into use.

1. H. *Sphondýlium*[1] L. (*common Cow-Parsnep*, or *Hog-weed*) ; leaves pinnated rough hairy, leaflets pinnatifid cut sinuated, ultimate one somewhat palmated, petals unequal, fruit glabrous. *E. Bot.* t. 939 ; *Ed. Cat.* p. 6. — β. leaves more deeply cut, lobes narrower. H. angustifolium *Sm.: Fl. Brit.* p. 307 ; *Jacq. Austr.* v. ii. t. 173.

Hedges, pastures, and bushy places, frequent. *Fl.* July. ♂. — A tall rank weed, 4—5 feet high. *Leaves* coarsely serrated, sheaths inflated. — Hogs are fond of this plant, and it is said to be wholesome and nourishing for cattle in general.

31. Tordýlium *Linn.* Hart-wort.
(Tab. II. f. 11.)

Fruit flat, with a broad thick crenated or waved accessory margin. *Carpels* with indistinct ribs, 3 dorsal and 2 distant marginal ones, with 1 or 3 *vittæ* in the interstices. *Pet.* radiant. — Name : the τορδυλιον of the Greeks.

[1] From σπονδυλος, the *vertebræ* of the back, to which the jointed stems were fancied to bear some resemblance.

1. * T. *officinále* L. (*small Hart-wort*); 2 outer petals of the flowers of the ray each with one very large lobe, involucres setaceous as long as the umbels, fruit with the thickened border beautifully crenated and glabrous. *E. Bot.* t. 2440. Condylocarpus *Koch.*

Near London (?) *Ray* and *Petiver*. *Fl.* June, July. ⊙. — Hairy, 1 foot high: *leaflets* few, ovate, lobed and notched, upper ones confluent. *Flowers* beautiful, with the outer large lobes of the *petals* white. *Fruit* rough on the surface, and having a very thick, pale, deeply notched or almost beaded border.

2. * T. *máximum* L. (*great Hart-wort*); 2 outer petals of the flowers of the ray each with 2 equal lobes, involucre linear shorter than the umbel, fruit with the thickened border scarcely notched and as well as the disk rough with appressed bristles. *E. Bot.* t. 1173; *Ed. Cat.* p. 14.

Rare; in waste ground about London, Oxford, and Eton. Between Twickenham and Isleworth: *Mr. G. Francis.* 1837. *Fl.* June, July. ⊙. — Much taller than the last, and with a greater number of more lanceolate *leaflets*. *Involucre* very short. *Petals* all comparatively small, rose-coloured.

D. *Fruit clothed with prickles, or with a prickly involucre (not beaked).* Gen. 32—35.

32. Daúcus *Linn.* Carrot.
(Tab. II. f. 12.)

Fruit dorsally compressed, elliptic-oblong. *Carpels* with the 5 ribs (2 in the inner face) bristly, the interstices very prominent and crowned with a single row of long flat prickles. *Pet.* radiant; those of the ray deeply bifid. (Involucres *often pinnatifid*).—Name: the δαυκος of Dioscorides.

1. D. *Caróta* L. (*wild Carrot*); bristles of the seed slender, leaves tripinnate, leaflets pinnatifid, segments linear-lanceolate acute, umbels with a solitary coloured abortive flower in the centre, when in seed concave. *E. Bot.* t. 1174; *Ed. Cat.* p. 4.

Pastures and borders of fields very frequent. *Fl.* July. ♂. — This is the origin of our *garden Carrot;* a name derived, as Théis tells us, from *car*, red, in Celtic; whence also comes *Garance*, the French name for the red Madder-roots. Professor Henslow finds a *var.* with viviparous flowers, near Cambridge.

2. D. *marítimus* With. (*Sea-side Carrot*); bristles of the seed flattened, leaves tripinnate, leaflets pinnatifid lanceolate fleshy, segments rounded, umbels destitute of abortive flower, convex when in seed. *E. Bot.* t. 2560; *Ed. Cat.* p. 4. D. gummifer *DC.* D. Carota γ. *Fl. Brit.* p. 300.

Sea coast of Kent and Cornwall. Anglesea. Island of Lismore, Scotland. Ireland. *Fl.* July, Aug. ♂. — Smaller than the preceding, with broader and more fleshy *leaves;* but I fear scarcely permanently distinct.

33. CAÚCALIS *Linn.* Bur-Parsley.
(Tab. II. f. 13.)

Fruit slightly laterally compressed. *Carpels* with the 5 ribs (2 in the inner face) bristly, the interstices with hooked prickles. *Pet.* radiant; those of the ray deeply bifid. (Involucres *many-leaved.*) — Named from κεω, *to lie along*, and καυλος, a *stem*: trailing upon the ground.

1. C. *daucoïdes* L. (*small Bur-Parsley*); leaves bi-tripinnatifid, segments short, umbels of few rays, general involucre none, partial umbels of few flowers, their involucres of about 3 small leaves. *E. Bot.* t. 197; *Ed. Cat.* p. 3.

Corn-fields, on a chalky soil, principally in the east and south-east of England. *Fl.* June. ⊙. — *Peduncles* lateral and terminal.

2. C. *latifólia* L. (*great Bur-Parsley*); hispid, leaves pinnate, leaflets decurrent pinnatifid and serrate, involucres ovate membranous. *E. Bot.* t. 198; *Ed. Cat.* p. 3. Turgenia latifolia *Koch.* Tordylium *L.*

Fields in a chalky soil, rare; abundant in Cambridgeshire. *Fl.* July. ⊙. — A very striking plant, and entirely different from the preceding. *Leaves* broad for this tribe of *Umbelliferæ*, and comparatively little divided. *Flowers* rose-coloured, large; *fruit* large and abundantly aculeated.

34. TORÍLIS *Adans.* Hedge-Parsley.
(Tab. II. f. 14.)

Fruit contracted at the side. *Carpels* with 3 dorsal bristly ribs, and 2 in the inner face of the carpels: the interstices clothed with prickles. *Pet.* obcordate, outer ones radiant. (Partial involucre *of many leaves.*) — Name of doubtful origin, perhaps, as Smith suggests, from τορεω, to *carve*, or *emboss*; in allusion to the appearance of the fruit.

1. T. *Anthriscus* Gærtn. (*upright Hedge-Parsley*); stem erect branched, leaves bipinnate, leaflets lanceolate inciso-serrate attenuate, umbels terminal, involucres of many small subulate leaves. *E. Fl.* v. ii. p. 48; *Ed. Cat.* p. 14. Caucalis *Huds.*: *E. Bot.* t. 987.

Hedges and waste places. *Fl.* July. ⊙. — *Stems* 2—3 feet high. *Fruit* densely clothed with incurved bristles.

2. T. *infésta* Spr. (*spreading Hedge-Parsley*); leaves bipinnate, leaflets ovate inciso-pinnatifid serrated, general involucre of one, partial of few subulate leaves. *E. Fl.* v. ii. p. 43; *Ed. Cat.* p. 14. Caucalis *Curt.*: *E. Bot.* t. 1314.

Fields and way-sides, common. *Fl.* July. ⊙. — "*Fruit* rough with spreading *hooked bristles*, and 3 rows of *straight* appressed ones." *Wils.*

3. T. *nódosa* Gærtn. (*knotted Hedge-Parsley*); stem prostrate, umbels lateral simple subsessile, fruit sometimes warted. *Ed. Cat.* p. 14. Caucalis, *E. Bot.* t. 199. Tordylium *L.*

Waste places by road-sides, frequent; especially in dry, gravelly, or chalky soils. *Fl.* May, June. ⊙.—*Leaves* bipinnate; *leaflets* ovate, pinnatifid, segments linear, acute, short. *Umbels* capitate, opposite the base of a leaf. *Flowers* reddish. *Outer fruits* of the umbel most bristly; *inner* ones partially tubercled.

35. Echinóphora *Linn.* Prickly Samphire. (Tab. II. f. 15.)

Fruit ovate, lodged in a prickly receptacle, with a prickly *involucre*. *Carpels* with 5 depressed, waved and striated, equal ridges, and simple *vittæ* in the interstices which are covered with a cobweb-like membrane. *Pet.* obcordate, with an inflected point. (Involucres *many-leaved.*)—Name derived from εχινος, a *hedgehog*, and φερω, to *bear*; in reference to the prickly nature of the plant.

1. E. **spinósa* L. (*Sea-side Prickly Samphire*, or *Sea-Parsnep*); leaves bipinnatifid, the segments trifid subulate spinous, involucres entire spinous. *E. Bot.* t. 2413.

Sandy sea-shores, Lancashire and Kent. *Fl.* July. ♃.—A very prickly and singular plant; but now, I fear, quite lost as a native of Britain: said, however, by Dr. Salter, to have been brought from near Weymouth to Miss Attersall, now of Blandford, in (or about) 1837. *Borrer.*

E. *Fruit more or less beaked; not prickly.* Gen. 36—39.

36. Scándix *Linn.* Shepherd's Needle. (Tab. II. f. 16.)

Fruit laterally compressed, with a very long beak. *Carpels* with 5 obtuse ribs. *Cal.-teeth* obsolete. *Pet.* obovate, with an inflected point. (Partial involucre *of 5—7 leaves.*)—Name from σκεω, to *prick*; because of the sharp and long points to the fruit.

1. S. *Pécten* L. (*Venus' Comb*; *Shepherd's Needle*); fruit roughish, leaflets cut into many linear short segments. *E. Bot.* t. 1396; *Ed. Cat.* p. 12.

Corn-fields, abundant. *Fl.* June, July. ⊙.—*Stem* 4—6 inches to a foot high, roughish. *Leaves* triply pinnate. *Umbels* of very few rays, 2—3. *Partial involucres* pinnatifid, or bipinnatifid. *Fruit* of singular appearance, and very large in proportion to the size of the plant and of the flowers that produce it.

37. Anthríscus *Pers.* Beaked-Parsley. (Tab II. f. 17.)

Fruit constricted at the suture, with a short beak. *Carpels* without ribs. *Cal.-teeth* obsolete. *Pet.* obcordate. (Partial

involucre *of many leaves.*) — Name given by Pliny to a plant, allied probably to this genus, but whose derivation we are ignorant of.

* *Fruit smooth.*

1. A. *sylvestris* Koch (*wild Beaked-Parsley*); umbels terminal stalked, stem glabrous, a little swelling below each joint. *Ed. Cat.* p. 1. Chærophyllum *L.*; *E. Bot.* t. 752.

Under the hedges and borders of fields, frequent. *Fl.* April—June. ♃. — 3 feet or more high, branched. *Leaves* triply pinnate; *leaflets* ovato-lanceolate, deeply cut. *Umbels* at first slightly drooping. *Partial involucres* of several ovato-lanceolate leaves. *Fruit* linear-oblong, with a much less evident *beak* than in *A. Cerefolium*. This beak, alone, is marked with a few ribs.

2. *A. *Cerefólium* Koch (*Garden Beaked-Parsley*); umbels lateral sessile, leaves tripartite decompound, leaflets ovate pinnatifid the segments obtuse. *Ed. Cat.* p. 1. Scandix *L. E. Bot.* t. 1268. Chærophyllum sativum *Hook. Fl. Scot.* i. p. 93; *E. Fl.* v. ii. p. 48.

Hedges and about gardens. Clifton, Notts: *Dr. Howitt. Fl.* July. ☉. — *Stem* slender, 1½—2 feet high. *Leaves* pale yellow-green, delicate. *Umbels* sessile, lateral, of few rays, pubescent. *Partial involucres* of few, about 3, leaves, unilateral, linear. *Umbellules* small. *Fruit* large, perfectly glabrous, linear, tapering upwards. — Known as a salad and pot-herb under the name of *Garden Chervil.*

** *Fruit muricated.*

3. A. *vulgáris* Pers. (*common Beaked-Parsley*); stem smooth, leaves ternately decompound, the segments obtuse, umbels opposite the leaves, fruit ovately conical hispid about twice as long as the glabrous beak. *Hook. Scot.* i. p. 93; *Ed. Cat.* p. 1. Scandix Anthriscus, *E. Bot.* t. 818.

Waste places, by road-sides, especially near towns and villages. *Fl.* May, June. ☉. — 2 feet or more high, swelling under each joint. *Leaves* slightly hairy. *Partial umbels* small, with small *involucres*. *Fruit* rather large, with a distinct furrow on each side which extends to the *beak*, covered with hooked bristles.

38. Chærophýllum *Linn.* Chervil. (Tab. II. f. 18.)

Fruit laterally compressed or constricted, with a short beak. *Carpels* with 5 obtuse ribs on the inner face of the carpels. *Cal.-teeth* obsolete. *Pet.* obcordate, with an inflected point. (Partial involucre *of many leaves.*) — Named from χαιρω, to *rejoice*, and φυλλον, a *leaf;* hence our word *Chervil*, applied to the cultivated *Anthriscus Cerefolium*, whose leaves have an agreeable smell.

1. C. *temuléntum* L. (*rough Chervil*); fruit with obtuse ribs, stem rough (spotted) swelling below each joint, partial invo-

lucres reflexed. *E. Bot.* t. 1521. C. temulum, *Ed. Cat.* p. 4. Myrrhis temulenta, *E. Fl.* v. ii. p. 51.

Hedges and copses, common. *Fl.* June, July. ♃. — 3 feet or more high; rough with hairs. *Leaves* doubly pinnate; *leaflets* pinnatifid or inciso-lobate. *Fruit* linear-oblong, striated. *Umbels* at first drooping.

2. C. **aúreum* L. (*tawny-seeded Chervil*); pubescent, fruit with obtuse ribs coloured, stem slightly swelling below the joints, leaflets very acuminate inciso-pinnatifid. *E. Bot.* t. 2103. Myrrhis aurea *Spr.: E. Fl.* v. ii. p. 52.

Fields, between Arbroath and Montrose. Near Corstorphine, Edinburgh: *Mr. G. Don. Fl.* June. ♃. — 3 feet or more high, branched, aromatic. *Leaves* tripinnate; *leaflets* peculiarly attenuated, at least on the upper leaves (for the *radical* ones are more obtuse), a character which distinguishes this from every other British species.

3. C. **aromáticum* L. (*broad-leaved Chervil*); fruit with obtuse ribs, leaves subternate bipinnate, leaflets ovato-oblong subacuminate serrate undivided. *Don in E. Bot. Suppl.* t. 2636. Myrrhis aromatica *Spr.: E. Fl.* v. ii. p. 52.

Road-side near Guthrie, leading from Forfar to Arbroath: *Mr. G. Don. Fl.* June. ♃. — 2—3 feet high, slightly pubescent below, glabrous above. *Leaves* biternate; *leaflets* large, undivided or rarely with a small lobe near the base, pubescent beneath. In this, as well as in *C. aureum*, there is sometimes a small *general involucre*. *Leaves*, as Persoon observes, resembling those of *Ægopodium Podagraria*; their smell is aromatic (*Mr. G. Don*).

39. Myrrhis *Tourn.* Cicely.
(Tab. II. f. 19.)

Fruit laterally compressed, with a deep furrow at the suture. *Carpels* with 5 very prominent, acutely carinated ribs. *Cal.-teeth* obsolete. *Pet.* obcordate, with an inflected point. (Partial involucre *of many leaves*. *Many of the* partial umbels *abortive.*) — Name perhaps derived from μυρρα, *myrrh*; the foliage of one species at least possessing an agreeable scent.

1. M. *odoráta* Scop. (*sweet Cicely*); fruit large with very sharp ribs and deep furrows between them. *Ed. Cat.* p. 9. Scandix odorata *L.: E. Bot.* p. 697.

Pastures in mountainous countries, especially in the north of England and lowlands of Scotland, generally near houses. *Fl.* May, June. ♃. — Whole plant highly aromatic, 2 feet and more high. *Leaves* large, triply pinnate; *leaflets* pinnatifid, ovato-lanceolate, inciso-serrate. Many of the *partial umbels* of this species, especially the inner ones, and sometimes even entire *umbels*, prove abortive. The *fruits* are remarkable for their large size and powerful fragrance; and, as Sir J. E. Smith well observes, make a part of the humble luxuries and simple medicines of the mountain cottager.

F. *Fruit globose; not prickly.* Gen. 40.

40. CORIÁNDRUM *Linn.* Coriander.
(Tab. II. f. 20.)

Fruit globose. *Carpels* closely cohering, the ribs obsolete, broad, interstices prominent, slender. *Petals* obcordate with an inflected point; outer ones radiant. (Involucre 0. Partial *on one side.*) — Name from κορις, a *bug;* in allusion to the intolerably fetid smell of the bruised foliage.

1. C. * *satívum* L. (*common Coriander*). *E. Bot.* t. 67; *Ed. Cat.* p. 4.

Fields and waste places, about Ipswich and in Essex, &c. *Fl.* June. ☉. — This is the only true species of the genus, and is well known as a medicinal plant. The *seeds* are highly aromatic, and sold enveloped in sugar as *Coriander comfits*. *Stem* erect, leafy. *Lower leaves* bipinnate; the pinnæ pinnatifid with broad, wedge-shaped, toothed segments: the *upper* leaves gradually more compound, their segments very narrow and linear, those of the uppermost leaves nearly setaceous. *Fruit* very curious; each *carpel* is hemispherical; on its inner and flat side having a projecting margin, which so combines with the opposite one as to leave no line or furrow between the two, and they form a complete little ball or globe; having, however, when quite ripe, 10 obscure elevated lines or ribs.

ORD. XXXIX. ARALIACEÆ *Juss.*

Calyx-tube adnate with the *ovary*, entire or cleft. *Petals* 4, 5, 10, or none. *Stamens* equal in number to the petals or twice as many, from the margin of an epigynous disk. *Ovary* 2- or more celled. *Styles* as many as cells. *Stigmas* simple. *Fruit* fleshy or dry, of several 1-seeded cells. *Seed* solitary, pendulous. *Albumen* fleshy, with a minute *embryo*. — Trees, Shrubs, *or* Herbs; *nearly allied to* Umbelliferæ. *Panax* affords the *Ginseng*.

1. ADÓXA *Linn.* Moschatell.

Cal. half-inferior, 3-cleft. *Cor.* superior, rotate, 4—5-cleft. *Stam.* 8—10, inserted by pairs. *Anther* terminal, 1-celled. *Berry* 4—5-celled. The side flowers have the corolla 5-cleft, the terminal one 4-cleft. — Named *a, without,* and δοξα, *glory;* from the humble and insignificant aspect of this little flower.

1. A. *moschatéllina* L. (*tuberous Moschatell*). *E. Bot.* t. 463; *Ed. Cat.* p. 1.

Woods, hedge-banks and shady places; not unfrequent at a great elevation and even upon the tops of Highland mountains. *Fl.* April, May. ♃. — *Root* composed of tooth-like scales, creeping. *Stem* about a span high. *Leaves* 2—3, radical, on very long *footstalks*, triternate, lobed and cut, 2 cauline ones small and simply ternate. *Peduncle* single, terminal, with a head of 4, verticillate *flowers*, and a fifth terminal one. *Stamens* united in pairs, or they may be considered as 4—5 forked *stamens*, each ramification terminated by the single cell of an *anther*,

and all springing from a fleshy ring that surrounds the upper part of the *germen*. The flowers have an evident musky smell in the evening, or early in the morning while the dew is on them. *Koch* refers this genus to *Caprifoliaceæ*.

2. Hédera *Linn.* Ivy.

Cal. of 5 teeth. *Pet.* broadest at the base. *Stam.* 5—10. *Style* simple, or 5—10 more or less combined. *Berry* with 3—5 *seeds*, crowned by the calyx.— Name of uncertain origin.

1. H. *Hélix* L. (*common Ivy*); leaves ovate or cordate and 3—5 lobed, lobes angular, umbel erect. *E. Bot.* t. 1267; *Ed. Cat.* p. 6.

Hedges, woods, old buildings, or rocks and trunks of trees, frequent. *Fl.* Oct. Nov. ♄. — *Stems* very long, creeping, throwing out numerous *roots* by which they adhere to hard substances. *Leaves* very shining, dark green, often veined with whitish lines. *Flowers* small, pale green. *Cal.-teeth* extremely minute. *Petals* reflexed. *Berries* smooth and black. A variety, called the *Irish Ivy*, is much cultivated on account of the vastly larger size of its foliage, and its very rapid growth.

Ord. XL. CORNEÆ *DC.*

Sepals 4, more or less united and adnate with the *ovary*. *Petals* 4, broad at the base, inserted at the top of the *calyx*. *Stamens* 4, inserted with the petals. *Style* filiform. *Stigma* simple. *Drupe* with a 2-celled *nucleus*. *Seeds* pendulous, solitary. *Albumen* fleshy. — Trees *or* Shrubs, *rarely* Herbs. Leaves (*except in one species*) *opposite*. Bark tonic.

1. Córnus *Linn.* Cornel.

Cal. of 4 teeth. *Petals* 4, superior. *Stam.* 4. *Nut* of the drupe with 2 cells and 2 *seeds*. — Named from *cornu*, a *horn*; owing to the hard nature of the wood.

1. C. *sanguínea* L. (*wild Cornel* or *Dogwood*); arborescent, branches straight, leaves opposite ovate green on both sides, cymes destitute of involucre. *E. Bot.* t. 249; *Ed. Cat.* p. 4.

Woods and thickets, particularly on a chalk or limestone soil; scarcely wild in Scotland. *Fl.* June, July. ♄. — 5—6 feet high. *Bark* in the older *branches* dark-red, as are the leaves before they fall; these are strongly nerved, entire, slightly hairy beneath. *Cymes* of numerous white *flowers* at the ends of the branches.

2. C. *Suécica* L. (*dwarf Cornel*); herbaceous, leaves all opposite ovate glabrous, flowers few umbellate surrounded by a 4-leaved petaloid involucre, and springing from the axil of the forked extremity of the stem. *E. Bot.* t. 310; *Ed. Cat.* p. 4.

Alpine pastures in Northumberland and Scotland: especially in turf bogs on the Highland mountains. *Fl.* July, Aug. ♃. — *Root* creeping. *Stems* about 6 inches high. *Umbel* terminal, from the axil of 2 young branches, which do not exceed the general flowerstalk in height, till the

fruit is ripe. *Drupes* red, said by the Highlanders to create appetite, and hence called *Lus-a-chraois*, plant of gluttony: *Lightf.*

B. Monopetalous. (Ord. XLI.—LXVI.)

Ord. XLI. LORANTHEÆ *Juss.*

Stamens and *pistils* often separated. *Calyx-tube* adnate with the *ovary*, bracteated at the base; its *limb* entire or lobed. *Corolla* monopetalous, or of 4—8 *petals* with a valvate æstivation. *Stamens* as many as *petals* and opposite to them. *Ovary* 1-celled. *Style* 1 or none. *Stigma* simple. *Fruit* succulent. *Seed* solitary, pendulous. *Albumen* fleshy. — *Parasitical, mostly tropical* Shrubs. Leaves *entire, generally opposite, thick and fleshy, without stipules.* — *Viscum album* is the *Misseltoe*, from the berries and the bark of which birdlime is made. The seed sometimes contains 2 and even 3 embryos.

1. Víscum *Linn.* Misseltoe.

Barren fl. Cal. obsolete. *Pet.* 4, ovate, fleshy, united at the base and bearing each a single anther adnate with the upper surface. — *Fertile fl. Cal.* an obscure margin, superior. *Petals* 4, erect, ovate, very minute. *Stigma* sessile. *Berry* inferior, bearing one *seed*, with 1—2 *embryos* (sometimes 3: *Mr. W. Wilson*). — Name: ἰξος, Greek, from *gwid*, Celtic, *the shrub*, par excellence, a sacred plant with our ancestors.

1. V. *álbum* L. (*common Misseltoe*); leaves obovato-lanceolate obtuse, stems dichotomous, heads of flowers in the axils of an upper pair of leaves. *E. Bot.* t. 1470; *Ed. Cat.* p. 15.

Parasitic; mostly on apple-trees, very seldom on the oak; frequent in the southern parts of England. On *Acer campestre* in Stoke Park, near Stapylton, Gloucester; and on Lime-trees and Locust-trees (*Robinia Pseudo-Acacia*), in immense abundance at Ampthill, Bedfordshire, the charming seat, formerly of Lord Holland, now the property of His Grace the Duke of Bedford. Meikleour, Scotland: *Mr. S. Murray. Fl.* March—May. ♄. — Whole plant of a yellow hue, thick and succulent. The *Misseltoe* was held sacred by the ancient Britons.

Ord. XLII. CAPRIFOLIACEÆ *Juss.*

Calyx-tube adnate with the *ovary*, usually bracteated at the base. *Corolla* regular or irregular. *Stamens* 4—5, alternate with the lobes of the corolla. *Stigmas* 1—3. *Fruit* generally a *berry*, 1- or many-celled, 1- or many-seeded, crowned with the persistent lobes of the calyx. *Albumen* fleshy. — Shrubs *or* Herbs, *with opposite* leaves; *no stipules.* Bark astringent; the flowers of *Sambucus* are purgative.

1. Sambúcus *Linn.* Elder.

Cal. 5-cleft. *Cor.* of 1 petal, rotate, 5-lobed. *Stam.* 5.

Stigmas 3, sessile. *Berry* inferior, 3- or 4-seeded. (*Leaves pinnated.*) — Named from σαμβυκη, a musical instrument, in the construction of which this wood is said to have been employed.

1. S. *E'bulus* L. (*dwarf Elder* or *Dane-wort*); cymes with 3 principal branches, leaflets lanceolate, stipules foliaceous, stem herbaceous. *E. Bot.* t. 475; *Ed. Cat.* p. 12.

Way-sides and in waste places, not uncommon in England and Scotland and Ireland. *Fl.* July. ♃. — *Stem* 2—3 feet high, angular and furrowed. *Leaves* pinnate; *leaflets* serrated. *Cymes* large, terminal, purplish. *Anthers* large, purple. *Berries* sphærical, black. — The plant has a fetid smell, and is violently purgative.

2. S. *nígra* L. (*common Elder*); cymes with 5 principal branches, leaflets ovate, stem arboreous. *E. Bot.* t. 476; *Ed. Cat.* p. 12. — β. leaves laciniated.

Woods, coppices, &c., frequent. β. Near Ayr. *Fl.* June. ♄. — A small *tree*, having the *stems* and *branches* full of pith. *Leaves* pinnate; *leaflets* serrated. *Cymes* terminal, large, cream-coloured, smelling unpleasantly. *Anthers* small, yellow. *Berries* purple-black, sometimes white. — The bark and flowers are used by country practitioners medicinally, and the fruit is employed for making wines and preserves.

2. Viburnum *Linn.* Guelder-rose.

Cal. 5-cleft. *Cor.* of 1 petal, 5-lobed. *Stam.* 5. *Stigmas* 3, sessile. *Berry* inferior, usually 1-seeded. (Leaves *simple.*) — Name of doubtful origin.

1. V. *Lantána* L. (*mealy Guelder-rose* or *Wayfaring-tree*); leaves elliptic serrated veined downy beneath. *E. Bot.* t. 331; *Ed. Cat.* p. 15.

Woods and hedges, especially in a chalky or limestone soil. Dunglass glen, Scotland. *Fl.* June. ♄. — A large *shrub*, much branched, with the young shoots very downy. *Flowers* in large dense *cymes*, white. *Cal.-teeth* very minute. *Berry* purplish-black. — The young shoots are much esteemed in the Crimea for the tubes of tobacco pipes.

2. V. *O'pulus* L. (*common Guelder-rose* or *Water-Elder*); leaves glabrous three-lobed acuminate and serrate, petioles with glands. *E. Bot.* t. 332; *Ed. Cat.* p. 15.

Woods and coppices, not unfrequent in England and Scotland. *Fl.* June, July. ♄. — A small *tree*, very glabrous. *Leaves* large, subcordate, broad. *Cymes* large, with white *flowers;* the perfect ones small and resembling the last; abortive ones in the circumference, consisting of a very large, plane, 5-lobed *petal*, without either *stamen* or *pistil*. *Flowers* erect. *Berries* reddish-purple, drooping.

3. Lonícera *Linn.* Honey-suckle.

Cal. with the limb small, 5-toothed. *Cor.* tubular or subcampanulate, the limb irregular, 5-cleft. *Stam.* 5. *Stigma* capitate. *Berry* 1—3 celled, many-seeded. — Named in honour of *Adam Lonicer*, a German botanist.

1. L. * *Caprifólium* L. (*pale perfoliate Honey-suckle*); flowers ringent whorled terminal sessile, upper leaves connato-perfoliate. *E. Bot.* t. 799; *Ed. Cat.* p. 8.

Woods and thickets, rare. Oxfordshire and Cambridgeshire. In Collinton woods and on Corstorphine hill near Edinburgh, and in hedges at Dalmeny, Linlithgowshire. *Fl.* June. ♄.—*Berries* smooth, of an orange-colour.

2. L. *Periclýmenum* L. (*common Honey-suckle; Woodbine*); flowers ringent capitate terminal, leaves all distinct. *E. Bot.* t. 800; *Ed. Cat.* p. 8.

Frequent in woods and hedges:

"And honey-suckle loves to crawl
Up the low *crag* and ruined *wall*."

Fl. June—Oct. ♄.—*Berries* red. The *stems* of this and the last species invariably twine in one and the same direction.

3. L. * *Xylósteum* L. (*upright Fly Honey-suckle*); peduncles 2-flowered, berries distinct, leaves ovate acuminate entire downy. *E. Bot.* t. 916; *Ed. Cat.* p. 8.

Thickets; near Sewenshele, Northumberland. Near Houghton Bridge, 4 miles from Arundel, Sussex. *Fl.* July. ♄.—An erect *shrub;* with pale yellowish, small, scentless *flowers*, succeeded by bright scarlet *berries*.

4. LINNÆA *Gronov.* Linnæa.

Cal. 5-cleft, superior. *Cor.* campanulate, 5-cleft, equal. *Stam.* 4, didynamous. *Fruit* a dry, 3-celled *berry*, with one cell only bearing a perfect *seed*. *Involucre* of about 4 leaves at the base of the germen.—Name: It was this "little northern plant, long overlooked, depressed, abject, flowering early," which Linnæus himself selected as therefore most appropriate to transmit his name to posterity. *Sm.*

1. L. *boreális* Gronov. (*two-flowered Linnæa*). *E. Bot.* t. 1297; *Hook. Fl. Lond. N. S.* t. 199; *Ed. Cat.* p. 8.

Woods in Scotland, especially of Fir, as well as, more rarely, in open, rocky and mossy situations, (probably where trees *have* been) in many parts of Perthshire, Inverness-shire, and Aberdeenshire. In addition to the several habitats already given in *Flora Scotica* for this most interesting plant, I may mention, near Brahan Castle, Ross-shire. Kinggussie, 7 m. from Aberdeen. Knock of Alves (along with the still rarer *Pyrola uniflora*) near Elgin, covering from 12 to 20 square yards, and flowering abundantly, 1828. Fionlarig Park, by Loch Tay. Clova mountains, but *flowering* only among Alder and Birch, above the White Water river. Banks of the Esk, at Dalhousie.—In England, only one station for it is known; viz. in a plantation of Scotch Firs at Catcherside, in the parish of Hartburn, Northumberland: *Miss Emma Trevelyan*. *Fl.* May, June. ♃.—*Stems* trailing, filiform, branched. *Leaves* opposite, broadly ovate, stalked, obscurely crenate. *Peduncles* axillary, long, erect, 2-flowered. *Flowers* fragrant, graceful, drooping; *pedicels*, *bracteas*, *involucre*, globose *germen* and *calyx*, all clothed with glandular *hairs*. *Cor.* rose-coloured, yellowish within.

Ord. XLIII. RUBIACEÆ *Juss.*

A most important Natural Family; of which those individuals having woody, or shrubby, rarely herbaceous stems and opposite and stipulated leaves, afford *Peruvian Bark*, in the various species of *Cinchona*; *Gambeer*, in *Nauclea*; a febrifuge, in *Condaminea* and *Rondeletia*; powerful emetics, in *Psychotria* and *Cephaelis*, especially *C. Ipecacuanha*, which is the *true* or *Brazilian Ipecacuanha*, in *Spermacoce* and *Richardsonia*. These, together with *Coffea*, the *Coffee-tree*, &c. are confined to hot or warm climates; whereas we, in our country, possess only that group with *slender*, *herbaceous*, *square stems* and *whorled leaves*, yielding a dye in their roots and called *Stellatæ* by Linnæus and Lindley; thus characterised, — *Calyx* adherent with the *ovary*, entire or toothed at the margin. *Corolla* regular, 4—5 lobed. *Stamens* 4—5, between the divisions of the corolla. *Ovary* 1. *Style* 2-partite or bifid. *Stigma* double. *Pericarp* 2-celled, 2-seeded. *Embryo* straight, imbedded in the axis of a horny *albumen*. *Radicle* inferior. — Herbs *with whorled leaves*. Flowers *axillary and terminal*.

1. Rúbia *Linn.* Madder.

Cor. rotate or campanulate, 3—5-cleft. *Stam.* 4. *Fruit* a 2-lobed *berry*. — Named from *ruber*, *red*, from the red dye afforded by its species, especially *Rubia tinctorum*, which produces the true *Madder* or *Turkey-red* of commerce.

1. R. *peregrina* L. (*wild Madder*); leaves 4—6 in a whorl, lanceolate persistent glossy the margin and keel rough with reflexed prickles, flowers 5-cleft. *E. Bot.* t. 851; *Ed. Cat.* p. 11.

Stony and sandy ground, in the south-west of England. Anglesea. *Fl.* June—Aug. ♃. — Very nearly allied to *R. tinctorum*; from which, according to De Candolle, it is distinguished by its "firmer and harsher texture, its persistent *leaves*, its larger *flower*, always 5-cleft, with the lobes of the *corolla*, broad and oval at their base, suddenly contracted into an acerose point." Again, Mr. Wilson justly remarks that the *corolla* is rather rotate than campanulate (or funnel-shaped, as in *R. tinctorum*); the segments, after the escape of the pollen, spreading with convex surfaces, concave in the newly opened flowers.

2. Gálium *Linn.* Bed-straw.

Cor. rotate, 4-cleft. *Stam.* 4. *Fruit* a dry, 2-lobed, indehiscent *pericarp*, without any distinct margin to the calyx. — Named from γαλα, *milk*: the plant having been used to curdle milk.

* *Fruit glabrous. Flowers yellow.*

1. G. *vérum* L. (*yellow Bed-straw*); leaves about 8 in a whorl linear grooved above, flowers in dense panicles. *E. Bot.* t. 660; *E. Fl.* v. i. p. 208; *Ed. Cat.* p. 6.

Dry banks, sandy places, and sea-shores, common. *Fl.* July, Aug. ♃. — Readily distinguished by its yellow *flowers*, and linear deflexed *leaves*. According to Lightfoot the Highlanders employ the roots[1], and principally the bark of them, to dye red; boiling them, with the yarn, and adding alum to fix the colour. They also use the plant as a Rennet to curdle milk, combined with the leaves of the stinging Nettle (*Urtica dioica*) and a little salt.

2. G. *cruciátum* L. (*Cross-wort Bed-straw, Mug-wort*); leaves 4 in a whorl ovate hairy, flowers polygamous clustered lateral, peduncles 2-leaved. *E. Bot.* t. 143; *Ed. Cat.* p. 6.

Hedge-banks and thickets, common. *Fl.* May, June. ♃.

** *Fruit glabrous. Flowers white.*

3. G. *palústre* L. (*white Water Bed-straw*); leaves 4—6 in a whorl oblongo-lanceolate obtuse tapering at the base and as well as the lax spreading branched stem, more or less rough. *Hook. Scot.* i. p. 51; *Ed. Cat.* p. 6. — *α.* stem and leaves smoothish. G. palustre, *E. Bot.* t. 1857. — *β.* nerves at the back and margins of the leaves and angles of the stem, distinctly rough with mostly reflexed prickles. G. Witheringii, *E. Bot.* t. 2206.

Sides of ditches, lakes, and rivulets. *Fl.* July. ♃. — "The transition from the smooth to the rough state of this plant may be observed on the borders of pools, and it is only in very wet spots that it corresponds with the description in *E. Fl.* of *G. palustre*. In dry situations, especially by road-sides (in Wales) where the earth has been recently disturbed (in the neighbourhoods of marshes) it assumes the state of *G. Witheringii*, but it is very luxuriant and branched. In marshes not liable to be overflowed, and in boggy ground, it is in every respect like that described in *E. Fl.* under *G. Witheringii*:" *Wilson MS.* The plant turns blackish in drying; and the upper leaves are generally of unequal size.

4. G. *uliginósum* L. (*rough Marsh Bed-straw*); leaves 6 in a whorl lanceolate mucronate their margins and the stem rough with reflexed prickles. *E. Bot.* t. 1972; *Ed. Cat.* p. 6.

Wet meadows and sides of ditches. *Fl.* Aug. ♃. — Distinguished by the lanceolate *leaves*, tapering at their base, and shortly acuminated at their points into a mucro. *Bristles* on the plant all reflexed.

5. G. *saxátile* L. (*smooth Heath Bed-straw*); leaves 6 in a whorl obovate mucronate, stem very much branched prostrate smooth. *E. Bot.* t. 815; *Ed. Cat.* p. 6.

Heathy spots and hilly and mountainous pastures, abundant, in some places the ground being almost white with it during summer. *Fl.* June —Aug. ♃. — *Plant* small, turning almost black in drying. *Leaves* often rough at the margins, of a thickish and rather soft texture. *Fruit*, as Sir J. E. Smith well observes, becoming reddish after the corollas fall, and then, when fertile, minutely granulated on the surface.

[1] Curtis says these roots yield a better red than Madder. The plant should be cultivated, and perhaps others of this natural group, all allied to the true *madder*, and the dyeing qualities of their roots correctly ascertained.

6. G. *eréctum* Huds. (*upright Bed-straw*); leaves about 8 in a whorl lanceolate mucronate their margins rough with prickles pointing forward, panicle much branched, stem glabrous flaccid, segments of the corolla mucronato-acuminate. *E. Bot.* t. 2067; *Ed. Cat.* p. 6. — β. leaves downy beneath.

Hedges and pastures, not common. In Norfolk: at Portslade, Sussex, and near Cambridge. Portobello, near Edinburgh. — β. near Plymouth. *Fl.* June, July. ♃. — "Differs from *G. uliginosum* by the edges and adjoining portion of the disk of the leaves above, bearing a double row of hooked prickles all pointing forward, in its larger size, stouter habit, glaucous hue, and larger, less obovate, *leaves*. The *flowers* are larger, far more numerous and crowded into dense, terminal, compound *panicles*; each segment of the corolla tipped with an awn-like point." *Sm.* in *E. Fl.* — Scarcely any genus requires illustration more than *Galium*. The present species is by Sprengel considered the same as *G. lucidum* of *Allioni*, and *G. rigidum* Vill. Roemer and Schultes, again, pronounce it *G. provinciale* Lam. Prof. Mertens refers it with certainty, upon the authority of a specimen received from Mr. Turner, to *G. lucidum*. Mr. Banks has sent me an individual, agreeing in every particular with the *E. Bot.* plant; except that the leaves are all minutely, but distinctly and thickly, downy beneath.

7. G. *cinéreum* All. (*grey spreading Bed-straw*); "leaves 6—8 in a whorl linear bristle-pointed with marginal prickles all pointing forward, stem weak much branched, fruit smooth, corolla (with the segments) taper-pointed." *E. Bot. Suppl.* t. 2783; *Ed. Cat.* p. 6. G. diffusum *Don in Hook. Scot.* i. p. 52 (*fide* Smith).

Banks of the river Leith near Slateford, 3 m. from Edinburgh, and near Kinnaird, Angus-shire. *Fl.* Aug. ♃. — Of this I know nothing, but from the notes of *Mr. G. Don*, which I published in *Fl. Scot.* and from the description of *Smith*, who says that it comes very near *G. erectum*, and that experience must prove how far its differences are constant.

8. G. *aristátum* L. (*bearded Bed-straw*); "leaves 6 in a whorl stalked lanceolate flat reticulated with veins bristle-pointed with minute marginal prickles pointing forward, stem much branched spreading smooth, seeds smooth kidney-shaped separated, corolla taper-pointed." *E. Fl.* v. i. p. 204; *E. Bot. Suppl.* t. 2784; *Ed. Cat.* p. 6.

In Angus-shire; but not common. *Fl.* July, Aug. ♃.

9. G. *Mollúgo* L. (*great Hedge Bed-straw*); leaves 8 in a whorl elliptical mucronate rough at the margin, flowers in loose spreading panicles, segments of the corolla mucronate. *E. Bot.* t. 1673; *Ed. Cat.* p. 6.

Hedges and thickets; less frequent in Scotland. *Fl.* July. Aug. ♃. — *Stems* very long and straggling. *Prickles* on the margins of the *leaves* pointing forward.

(*Galium Insubricum* of Gaudin, which that author says has perhaps been mistaken for some of the varieties of *G. Mollugo*, is given in the *Ed. Cat.* as a British plant; but I know not on what authority.)

10. G. *pusíllum* L. (*least Mountain Bed-straw*); "leaves 8 in a whorl linear-lanceolate hair-pointed entire somewhat hairy, panicles terminal forked, fruit very smooth." *E. Bot.* t. 74; *Ed. Cat.* p. 6.

Limestone hills, near Kendal and about Matlock, Derbyshire; and near the lake of Killarney, Ireland. Pentland and Strathblane hills and lower rocks of Clova in Scotland. *Fl.* July, Aug. ♃. — I have never been so fortunate as to see this species in a good state, and foreign authors seem to be little, if at all, acquainted with it. *Mr. Wilson* is inclined to think the plant of Killarney only a *var.* of G. *saxatile.*

11. G. *Parisiénse* L. (*Wall Bed-straw*); leaves about 6 in a whorl lanceolate mucronate rough at the margins, peduncles axillary their branches divaricated slender subtrichotomous, stems slender rough. — *α.* fruit hispid. G. Parisiense *L.*: *Ed. Cat.* p. 6. G. litigiosum *DC. Ic. Pl. Gall.* p. 8. t. 26. G. gracile *Wallr.* G. gracile *α. Mert.* and *Koch.* — *β.* fruit glabrous slightly tuberculated. G. Parisiense *Ten.* G. Anglicum *Huds.*: *E. Bot.* t. 384. G. gracile *β. Mertens* and *Koch.*

β. Walls and dry sandy soils, but rare; in Kent and various parts of the east and south-east of England, especially on old walls. *Fl.* June, ☉. — On comparing this with the *G. Parisiense* of continental authors, I think it will appear evident that ours is but the glabrous-fruited *var.*, which is also found on the continent. The *G. Parisiense* of Tenore, for example, has the fruit quite glabrous.

12. G. *saccharátum* All. (*warty-fruited Bed-straw*); leaves 6 in a whorl lanceolate their margins rough with prickles pointing forward, peduncles axillary 3-flowered, fruit reflexed warted. *Ed. Cat.* p. 6. G. verrucosum, *E. Bot.* t. 2173. Valantia Aparine *Linn.*

Corn-fields, rare. Corn-fields in the Carse of Gowrie, Scotland. Near Malton, Yorkshire. *Fl.* June — Aug. ☉. — *Prickles* of the *stem* reflexed. The 2 lateral flowers on each peduncle are sterile, and fall away, one from each side of the large warted *fruit*, which, together with the marginal prickles of the leaves pointing forwards, essentially distinguish this from *G. tricorne.*

13. G. *tricórne* With. (*rough-fruited Corn Bed-straw*); leaves about 8 in a whorl lanceolate their margins midrib and angles of the stem rough with reflexed prickles, peduncles axillary 3-flowered, fruit reflexed granulated. *E. Bot.* t. 1641; *Ed. Cat.* p. 6.

Dry chalky fields, in England; Isle of Thanet, in Surrey, and near Stamford, Lincolnshire. In Oxfordshire, Yorkshire, Gloucestershire, Norfolk, Suffolk, and the Isle of Wight. *Fl.* July. ☉.

14. G. **spúrium* L. (*smooth-fruited Corn Bed-straw*); leaves about 8 in a whorl their margins as well as the stem rough with reflexed prickles, peduncles axillary many-flowered, fruit smooth spreading. *E. Bot.* t. 1871; *Ed. Cat.* p. 6.

Corn-fields near Forfar, rare. *Fl.* July. ☉. — Allied to the 2 last species in its short axillary *peduncles*: but in general habit coming so

near *G. Aparine*, that, except by the glabrous *fruit*, it is scarcely to be distinguished. Sprengel asserts them to be the same.

**** Fruit hispid. Flowers white.*

15. G. *boreále* L. (*Cross-leaved Bed-straw*); leaves 4 in a whorl lanceolate 3-nerved glabrous, stems erect, fruit muricated. *E. Bot.* t. 105; *Ed. Cat.* p. 6.

Moist rocks, frequent in the North of England; Wales, and Ireland. *Fl.* June, July. ♃. — In very shady places and clefts of rocks, the *stems* are long and straggling. *Flowers* numerous, crowded, white, *Bristles* of the *fruit* hooked.

16. G. *Aparíne* L. (*Goose-grass or Cleavers*); leaves 6—8 in a whorl lanceolate hispid their margins midrib and angles of the stem very rough with reflexed bristles, peduncles axillary, stem weak, fruit hispid. *E. Bot.* t. 816; *Ed. Cat.* p. 6.

Hedges, abundant. *Fl.* June, July. ☉. — Habit of spec. 12, 13, 14; and, like them, annual. *Plant* straggling among bushes. *Flowers* few, 2 or 3 together, on short simple *footstalks*, arising from the axils of the leaves. *Bristles* of the *fruit* hooked, which by their means catches hold of the coats of animals, and is widely dispersed. The *seeds* have been recommended as a substitute for *coffee*.

3. Sherárdia *Linn.* Sherardia or Field-Madder.

Cor. funnel-shaped. *Stam.* 4. *Fruit* crowned with the *cal.* —Named in honour of *James Sherard*, an English botanist and patron of that Science, whose fine garden at Eltham in Kent gave rise to the famous "*Hortus Elthamensis*" of Dillenius.

1. S. *arvénsis* L. (*blue Sherardia*); leaves about 6 in a whorl, flowers terminal sessile capitate. *E. Bot.* t. 891; *Ed. Cat.* p. 13.

Corn-fields, especially in a light gravelly soil, frequent. *Fl.* June — Aug. ☉. — A small, slender, branched and spreading plant. *Leaves* obovato-lanceolate, acute, their margins rough, upper ones 7—8, forming an involucre to a small sessile *umbel* of pale blue *flowers*. *Cal.* of 4 segments, two opposite ones bifid; these bifid ones correspond to the line where the *fruit* divides into two one-seeded portions, each of which is crowned with three teeth; one being the single tooth or segment of the *cal.*; the other two, each half of a double one.

4. Aspérula *Linn.* Woodruff.

Cor. funnel-shaped. *Stam.* 4. *Fruit* without any distinct margin to the *cal.*—Named from *asper*, rough, owing to the roughness of some species of the genus.

1. A. *odoráta* L. (*sweet Woodruff*); leaves about 8 in a whorl lanceolate, flowers panicled on long stalks. *E. Bot.* t. 755; *Ed. Cat.* p. 2.

Woods and shady places, plentiful. *Fl.* May, June. ♃. — About 6 inches high, erect. *Flowers* white. Whole plant very fragrant, like *Anthoxanthum*, especially when drying.

2. A. *Cynánchica* L. (*small Woodruff, Squinancy-wort*); leaves linear 4 in a whorl, upper whorls with 2 opposite leaves reduced to stipules. *E. Bot.* t. 33; *Ed. Cat.* p. 2.

Warm banks, especially in chalky countries. Lime-rocks, Swansea and Tenby, S. Wales: *J. E. Bowman, Esq.* Gower, Glamorganshire: *J. A. Babington, Esq.*, 1835. Not found in Scotland. *Fl.* June, July. ♃. — *Flowers* generally lilac. One pair, in the whorl of the uppermost leaves, is reduced to small lanceolate *stipules*, exhibiting beautifully the real character of the stipules of the shrubby *Rubiaceæ*.

3. A. * *arvénsis* L. (*Field Woodruff*); annual, leaves 6—10 in a whorl linear-lanceolate obtuse, flowers aggregate terminal surrounded by long ciliated bracteas, fruit glabrous. *Banks in Plym. and Davenp. Fl.; E. Bot. Suppl.* t. 2792; *Ed. Cat.* p. 2.

Near Davenport: *Rev. C. A. Johns*; now extinct. ☉. — The root is annual, and the *flowers* bright blue; the *fruit* large and very conspicuous.

Ord. XLIV. VALERIANEÆ.

Calyx-tube adnate with the *ovary*, the *limb* toothed or forming a *pappus*. *Corolla* with 3—6 lobes. *Ovary* with 1 perfect cell and often 2 or 3 abortive ones. *Fruit* dry, indehiscent. *Seed* solitary, pendulous. — Leaves *opposite, without stipules*.— Tonic and bitter herbs: the roots, used as Vermifuges, have a powerful scent; those of *Nardostachys Jatamansi* constitute the Spikenard of the ancients. The seeds of an allied plant, *Valeriana rubra*, have been used in former times for embalming the dead; and some, thus employed in the 12th century, on being removed from the cere-cloth, in the 19th century, and planted, have vegetated.

1. Valeriána *Linn.* Valerian.

Cal. a thickened margin at the top of the germen, at length unfolding into a feathery *pappus*. *Stam.* 1—3. *Cor.* monopetalous, 5-cleft, gibbous or spurred at the base. *Fruit* 1-seeded, crowned with the feathery *pappus*. — Named from *valeo, to be powerful*, on account of the medicinal effects.

1. *V. *rúbra* L. (*red Valerian*); corolla with a long spur, stamen 1, leaves ovato-lanceolate. *E. Bot.* t. 1532; *Ed. Cat.* p. 3. Centranthus *D.C.*

Chalk-pits and old walls in Kent, &c. Its native country is the south of Europe. *Fl.* June—Sept. ♃. — One foot or more high, glabrous, somewhat glaucous. *Leaves*, as in all the species of this and the following genus, opposite, entire or slightly toothed. *Flowers* fine deep rose colour, arranged in numerous unilateral cymose *spikes*.

2. V. *dioíca* L. (*small Marsh Valerian*); flowers dicœcious, corolla gibbous at the base, root-leaves ovato-spathulate, those of the stem lyrato-pinnatifid. *E. Bot.* t. 628; *Ed. Cat.* p. 14.

Marshy meadows, frequent. *Fl.* June. ♃. — *Stem* 6—8 inches high. *Leaves* more or less serrated. *Flowers* of a pale rosé-colour.

3. V. *officinális* L. (*great wild Valerian*); corolla gibbous at the base, leaves all pinnated, leaflets lanceolate nearly uniform, serrated. *E. Bot.* t. 698; *Ed. Cat.* p. 14.

Ditches, sides of rivers and moist woods, abundant. *Fl.* June, July. ♃. — *Roots* tuberous, warm, aromatic and employed in medicine, as those of the φου of Dioscorides, *V. Dioscoridis, Sm.* which is not the *V. Phu* of *Linn.* Cats are very fond of these roots, and their scent attracts rats. The leaves are much used by the poor as an application to fresh wounds; hence the plant has received the name of *All-heal.* Whole plant 2—4 feet high; *stems* striated. Lower *leaves* on long foot-stalks. *Flowers* pale flesh-coloured.

4. *V. *Pyrenáica* L. (*heart-leaved Valerian*); corolla gibbous at the base, leaves heart-shaped dentato-serrate petiolate, upper ones with one or two pair of small lanceolate leaflets. *E. Bot.* t. 1591; *Ed. Cat.* p. 14.

Woods in Scotland. It is peculiar, I believe, to the Pyrenées; but being frequently cultivated in gardens and the seeds very volatile, like those of the Syngenesious plants, it is not wonderful that it should be naturalised in other countries. *Fl.* June, July. ♃. — Habit of *V. officinalis*, but very different in its foliage.

2. Fédia *Vahl.* Corn-Salad.

Cal. small, unequally toothed, crowning the fruit. *Cor.* monopetalous, 5-cleft, gibbous at the base. *Stam.* 3. *Capsule* indehiscent, 3-celled, 3-seeded: 2 *cells* generally abortive. — Name given by Adanson, but its meaning is not accurately known: according to Smith, *Fedus* is synonymous with *hœdus*, a *kid.*

1. F. *olitória* Vahl (*common Corn-Salad or Lamb's Lettuce*); capsule subglobose inflated glabrous, crowned with the 3 obscure inflexed teeth of the calyx, flowers capitate. Valeriana Locusta *L.: E. Bot.* t. 811. Valerianella olitoria, *Ed. Cat.* p. 14.

Banks and corn-fields, especially in a light soil. *Fl.* April—June. ☉. — 3 inches to a foot high, dichotomous, more or less rough. *Root-leaves* spathulate; those of the *stem* oblong, obtuse, entire or the upper ones a little toothed. *Flowers* pale blue, in terminal compact heads, at the base of which are linear-oblong, often divided *bracteas* forming a kind of *involucre.* — Frequently cultivated as a salad.

2. F. *dentáta* Vahl (*smooth narrow-fruited Corn-Salad*); capsule ovate ribbed in front acuminate crowned with the prominent cup-shaped oblique unequally 4-toothed calyx, flowers corymbose, a sessile flower in the forks. — α. capsule glabrous, cup of the calyx small. Valeriana dentata *Willd.: E. Bot.* t. 1370. Valerianella dentata, *Ed. Cat.* p. 14. — β. capsule clothed with spreading incurved rigid hairs, cup of the calyx small. F. mixta *Vahl: Dufr. Val.* p. 58. t. 3. f. 6; *Brit. Fl.*

ed. 2. v. i. p. 23. — γ. capsule clothed with spreading incurved rigid hairs, cup of the calyx large. F. eriocarpa *Roem. et Sch.: Dufr. Val.* p. 39. t. 3. n. 4; *Hook. Br. Fl.* ed. 2. v. 1. p. 24.

α. Corn-fields and hedge-banks, not common. Cornwall, Essex, and Cambridgeshire, and about Edinburgh. North Wales. Long Lane Quarries, Cheney Longville, Shropshire: *Mr. W. A. Leighton.* Jersey: *Babington* and *Christy.*—β. Hedgebanks, near Halesworth, Suffolk.—γ. Ormeshead, Caernarvonshire. *Fl.* June, July. ⊙. — Perhaps often confounded with the last, from which it is perfectly distinct. *Leaves* narrower, the upper ones more toothed and even pectinated. *Flowers* flesh-coloured. *Fruit* obpyriform; convex on the back where is the larger and perfect cell; nearly plane in front where are the two abortive cells, and these are shrunk so as to form two projecting lines or ribs, which are terminated by two small subulate teeth; between them is often another little tooth: while the perfect cell is lengthened out into a large broad and sharp tooth, which has generally at its base two smaller slightly inflexed teeth, one on each side. The whole fruit is glabrous or nearly so, in α.: in β. and γ., which Mr. Wilson by the most accurate investigation has satisfied me are different states of this species, it is clothed with patent incurved rigid hairs. The Ormeshead plant, however, Mr. Borrer observes, has kept its peculiar habit six years in his garden.

3. F. *Auricula* Gaud. (*sharp-fruited Corn-Salad*); capsule ovate acuminated somewhat inflated slightly grooved in front glabrous crowned with the single entire tooth of the limb of the calyx, flowers corymbose, a sessile flower in the forks. *Reich. Ic. Bot.* v. i. t. 63; *Woods in E. Bot. Suppl.* t. 2809. Valerianella Auricula *DeCand. Fl. Fr. Suppl.* p. 492; *Coll. Mem.* t. 3. f. 6. (*fruit*); *Ed. Cat.* p. 14.— β. *Wood's MS. F. trident.* " *Stev.*"; *Reich. Ic. Bot.* t. 64.

α. Hastings, in fields below Ore Lane: *Dr. Bromfield.* Slaughter Farm, near Bourton on the water: *Rev. J. R. T. Billingsley.* Henbury, near Bristol: *Dr. Stewart.* Devon, in many places: *Mr. Borrer.* Jersey: *Babington* and *Christy.* Fifeshire: *Mr. G. M'Nab.* — β. Lindulph, Cornwall: *Rev. R. T. Bree. Fl.* June, July. ⊙. — The fruit is certainly considerably different from the last species, being broader and more inflated, obscurely furrowed in front (not ribbed) and crowned with a small single tooth of the limb of the calyx.

4. F. *carinata* Stev. (*carinated Fedia*); capsule oblong rimoso-carinate glabrous the 2 sterile cells nearly equal to the fertile one, crowned with the straight single tooth of the limb of the calyx. *Woods in E. Bot. Suppl.* t. 2810. Valerianella carinata *Loisel.: Reich. Icon. Bot.* t. 61; *De Cand. Prodr.* v. iv. p. 629; *Mém. sur les Valer.* t. 3. f. 10; *Ed. Cat.* p. 14.

Hedge-bank of a by-road about a mile from the Craven Arms, and at Church Stretton, Shropshire (10 miles west of Ludlow), and between Gresford and Wrexham: *J. E. Bowman, Esq.*, to whom I am indebted for very characteristic specimens. Jersey: *Babington* and *Christy.*

Ord. XLV. DIPSACEÆ.

Calyx-tube adnate with the *ovary*, surrounded by a scariose *involucre*. *Corolla* with the *limb* oblique, with an imbricated æstivation. *Stamens* 4: *anthers* distinct. *Ovary* 1-celled. *Fruit* dry, indehiscent, 1-celled, with one pendulous *seed*, crowned with the pappus-like calyx. *Albumen* fleshy.—*Mostly* herbaceous plants, *with opposite* or *whorled* leaves. Flowers *pedicellate, collected into a head which is surrounded by a many-leaved involucre. Nearly allied to the* Compositæ. The Fuller's Teasel is the heads, with uncinate spines, of *Dipsacus Fullonum*.

1. Dípsacus *Linn.* Teasel.

Involucre many-leaved. *Cal.* double; *ext.* very minute, forming a thickened limb to the germen; *int.* cup-shaped, entire. *Receptacle* chaffy, spinous. *Fruit* angular, with 8 pores or depressed points, crowned with the double *cal.* (*Flowers* densely capitate.) — Named from διψαω, *to be thirsty*; the upper connate leaves containing water in their hollows.

1. D. **Fullónum* L. (*Fuller's Teasel*); leaves subconnate, scales of the receptacle hooked at the extremity, involucres spreading (reflexed, *Sm.*) *E. Bot.* t. 2080; *Ed. Cat.* p. 5.

Waste places and hedge-banks; rare. *Fl.* July, Aug. ♂. — *Stem* 4—5 feet high, very angular and prickly. *Leaves* large, oblong, or oblong-lanceolate, obtusely and irregularly serrated, sometimes, especially the upper ones, connate. *Involucre* spreading, about as long as the head of flowers. *Flowers* in oval heads, pale purple or whitish. — Used in dressing cloth, for which purpose the hooked scales of the receptacle are admirably calculated. These hooks become obsolete by long cultivation in a poor soil, and there is reason to believe that *D. Fullonum* is but a *var.* of *D. sylvestris*.

2. D. *sylvéstris* L. (*wild Teasel*); leaves opposite rarely connate, scales of the receptacle straight at the extremity, involucres curved upward. *E. Bot.* t. 1032; *Ed. Cat.* p. 5.

Road-sides and hedges, not rare in England; less frequent in Scotland. *Fl.* July. ♂.

3. D. *pilósus* L. (*small Teasel*); leaves petiolate with a small leaflet at the base on each side, involucres shortly deflexed. *E. Bot.* t. 877; *Ed. Cat.* p. 5.

Moist hedges, but not common. In several places in Norfolk and Suffolk, Sussex and Surrey. Rare in Scotland. *Fl.* Aug. Sept. ♂. — *Stem* slender, 2—4 ft. high, angular, rough with short reflexed prickles, which are longer and resembling bristles on the peduncles. *Leaves* ovato-acuminate, serrated, eared at the base. Heads of *flowers* rather small, round, hairy. *Scales* straight; *blossoms* white. *Anthers* white, much protruded. *Fruit* 4-sided, with 2 depressed dots, according to Mr. Coulter, on each face on the upper part.

2. Scabiósa *Linn.* Scabious.

Involucre many-leaved. *Cal.* double; *ext.* mostly membranaceous and plaited; *int.* with about 5 bristles. *Fruit* subcylindrical, crowned with the double *cal.* (*Flowers* densely capitate.) — Named from *Scabies*, the *leprosy*, an infusion or decoction of some of the species having formerly been employed in curing cutaneous diseases.

1. S. *succísa* L. (*Devil's-bit Scabious*); corollas 4-cleft their segments nearly equal, cauline leaves dentate, heads of flowers nearly globose. *E. Bot.* t. 878; *Ed. Cat.* p. 13.

Meadows and pastures, common. *Fl.* July—Oct. ♃. — *Root* as it were cut off abruptly, or bitten (*radix præmorsa*). *Stems* nearly simple. *Leaves* hairy, rather stiff; *radical* ones ovate, mostly petiolate, those of the stem oblong. *Flowers* purplish-blue.

2. S. *columbária* L. (*small Scabious*); corollas 5-cleft radiating, stem hairy, radical leaves oblong-ovate crenate or lyrate, those of the stem pinnatifid with linear segments. *E. Bot.* t. 1311; *Ed. Cat.* p. 13.

Pastures and waste places, most abundant in chalk countries: rare in Scotland; near Arbroath, with white fl.; plentiful near Montrose, and at Blackford. *Fl.* July, Aug. ♃. — Scarcely a foot high, hairy. Lower *leaves* on rather long *footstalks;* cauline ones cut into narrow, linear or setaceous pinnæ. *Flowers* purplish-blue. *Involucre* of narrow leaves, longer than the flowers. *Inner cal.* with 5 bristles.

3. Knaútia *Linn.* Knautia.

Involucre many-leaved. *Cal.* double; *ext.* minute, *int.* cup-shaped. *Fruit* upon a short stalk, compressed, with 4 pores or depressed points. — Named in honour of *Christopher Knaut*, a botanist of Saxony, who flourished in the latter half of the 17th century.

1. K. *arvénsis* Coult. (*Field Knautia*); heads of many flowers, outer calyx with very minute teeth, inner with 8—16 somewhat awned cilia. *Coult.*: *Ed. Cat.* p. 7. Scabiosa arvensis *Linn.*: *E. Bot.* t. 659.

Pastures and corn-fields, frequent. *Fl.* July. ♃. — 2—3 ft. high. Radical *leaves* lanceolate, slightly serrated, hairy. Heads of *flowers* large, convex, lilac-purple; *outer florets* large, with their segments unequal, so that the lower ones form a sort of ray around the head; *inner florets* with equal segments.

Ord. XLVI. COMPOSITÆ.

Calyx adherent with the *ovary*, the *limb* entire or toothed or mostly expanded into a *pappus*, which crowns the fruit. *Corolla* regular or irregular, tubular or ligulate. *Stamens* 5, syngenesious. *Ovary* 1. *Style* 1, sheathed by the tube of the *anthers*. *Stigmas* simple or bifid. *Fruit* an *achenium*. *Seed*

erect, without *albumen*. *Embryo* straight. *Radicle* opposite the *hilum*. — Stems, *in the British Genera, herbaceous*. Leaves *opposite or alternate*. Flowers *or florets collected into a head* (compound flower, *L.*), *inserted into a broad receptacle and surrounded by an involucre* (calyx, *L.*). The properties in so extensive an Order are very varied; but, generally speaking, those of — Tribe 1. CICHORACEÆ, are bitter and narcotic, abounding in milky juice. — Tribe 2. CYNAROCEPHALÆ, bitter and tonic. — Tribe 3. CORYMBIFERÆ, aromatic, stimulant, containing bitter principle and essential oil.

This is one of the most extensive and natural of all the families of plants, and consequently difficult of arrangement and investigation. By Linnæus (as may be seen by our table of the Linnæan method), the class *Syngenesia* (or *Compositæ*) is divided into groupes, from very simple characters, and though acknowledged to be an artificial system, yet the grouping is almost a natural one. The Suborders or Tribes of Jussieu are quite natural, not only as to general aspect, but as to general properties. The arrangement of Cassini and DeCandolle is equally natural with that of Jussieu, but far more difficult of application, from the circumstance of the primary characters being taken from the minute stigmas of the very small flowers. That of Jussieu is, therefore, here, by preference, adopted, and the study of the British genera of this family it is hoped will be greatly facilitated by the accompanying plates (Tab. III.—VII. inclusive.) The genus *Xanthium* is so anomalous that I have separated it from the other *Compositæ*, and inserted it at the end; indeed, Link has placed it in a distinct Order, *Ambrosiaceæ*.

Tribe I. CICHORACEÆ. Chicory or Lettuce Tribe.

All the florets ligulate and perfect, having stamens and pistils. Styles not articulated. Gen. 1—14. (See Tab. III.)[1]

1. TRAGOPÓGON *Linn.* Goat's-beard.

Fruit longitudinally striated, beaked. *Pappus* feathery. *Receptacle* naked. *Involucre* simple, of several scales. — Named

[1] At Tab. III. is a very familiar example of this group in the *Dandelion* (*Leontodon Taraxacum*), where it will be at once seen that all the little flowers or florets (f. 2.) are ligulate or strap-shaped, within the involucre, and perfect.

Fig. 1. Head of flowers in bud, the young involucre alone being visible.

Fig. 2. Head of flowers (compound or common flower of Linnæus) expanded; the little flowers in the centre at first sight appear somewhat different from the rest, but that arises from their being less advanced than the outer ones, which are the first to open.

Fig. 3. A single flower or floret, removed from the receptacle, showing (at *a*) the ligulate corolla; (*b*) the germen (ovary or young fruit) covered with the tube of the calyx, which is lengthened above, in a curious manner, into a little stalk or beak, and crowned with the pappus or seed-down, which is, in fact, the limb or free portion of the calyx, within which the corolla is inserted; (*c*) the stamens, of which the filaments are inserted into the lower or tubular portion of the corolla, and the five anthers are united into a tube around the style; (*d*) the style, continued from the top of the germen, through the corolla and united stamens, dividing into two branches,

from τραγος, a *goat*, and πωγων, a *beard*; from the beautifully bearded fruit.

1. T. *praténsis* L. (*yellow Goat's-beard*); involucre about as long as the corollas, leaves undivided glabrous acuminated channelled, peduncles cylindrical. *E. Bot.* t. 434; *Ed. Cat.* p. 14. —β. involucre longer than the corollas, peduncle slightly thickened upwards. T. major *Jacq.* T. minor *Fries: Ed. Cat.* p. 14.

Meadows and pastures. Scotland. Ireland. *Fl.* June. ♂. — 1—2 ft. high. *Flowers* yellow, closing every day before noon; head of *fruit* large. *Pappus* very feathery, elevated on a long stalk.

2. T. **porrifólius* L. (*purple Goat's-beard* or *Salsafy*); involucre much longer than the corollas, leaves undivided straight, peduncles thickened upwards. *E. Bot.* t. 638; *Ed. Cat.* p. 14.

Moist meadows in several parts of England; but very local. About Glasgow. *Fl.* May, June, ♃. — 3—4 feet high. *Flowers* large, purple, closing before noon or in rainy weather. The *root* was formerly cultivated for culinary purposes.

2. Helmínthia *Juss.* Ox-tongue.

Fruit transversely striated, beaked. *Pappus* feathery. *Receptacle* naked. *Involucre* double; inner of 8 close scales, outer of 4 (or 5) large, lax, leafy ones. — Name: ἑλμινς, ἑλμινθος, a *worm*, and ϑηκη, a *case*; from the form of the fruit.

1. H. *echioídes* Gærtn. (*bristly Ox-tongue*). *Ed. Cat.* p. 6. Picris *L.: E. Bot.* t. 972.

Borders of fields, especially in a clayey soil. Not found in Scotland. About Dublin. *Fl.* June, July. ♃. — 2—3 feet high, stout, hispid with numerous rigid hairs, springing from tubercles. Lower *leaves* lanceolate; upper ones cordate, amplexicaul. *Flowers* small, yellow. Outer *involucre* large, with heart-shaped *scales*.

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which bear the minute stigmas. This style has no articulation, as in the Thistle group.

Fig. 4. A head of a Dandelion, immediately after flowering, or in moist weather, when the corollas, with the stamens and style, having withered away, the inner scales of the involucre close upon the numerous seed-vessels which yet remain on the receptacle.

Fig. 5. Head of flowers, now become seed-vessels, still attached to the receptacle, as seen in dry weather before their dispersion. The involucre is now bent back, and all the pappuses, with their stalks or beaks much elongated, are beautifully spread out, so as to form, apparently, a cobwebby globe or ball, entirely concealing the involucre and the receptacle.

Fig. 6. A receptacle, with the involucre bent back in age, and all the fruits or seed-vessels having fallen away but one.

Fig. 7. A hair from the pappus.

Fig. 8. A fruit laid open, showing the erect seed in the cavity or cell.

All but figs. 1. 2. 4. and 5. more or less *magnified*.

3. Pícris *Linn.* Picris.

Fruit transversely striated, without a beak. *Pappus* with the inner hairs feathery. *Receptacle* naked. *Involucre* of many compact, upright, equal scales, with several small, lax, linear ones. — Name: πικρος, *bitter*, as are many of this tribe.

1. P. *hieracioídes* L. (*Hawk-weed Picris*); stem rough with hooked bristles, leaves lanceolate rough toothed, flowers corymbose, peduncles with many bracteas. *E. Bot.* t. 196; *Ed. Cat.* p. 10.

Road-sides and borders of fields, frequent. *Fl.* July, Aug. ♃. — *Stems* 2—3 feet high. *Flowers* yellow.

4. Apárgia *Schreb.* Hawkbit.

Fruit beaked. *Pappus* feathery. *Receptacle* naked. *Involucre* unequally imbricated, with hirsute black scales. — Name of uncertain origin.

1. A. *híspida* Willd. (*rough Hawkbit*); scape single-flowered, leaves runcinate hispid with forked hairs, flowers drooping in bud, "florets hairy at their orifice glandulose at the tip," involucre hairy. Hedypnois *Huds.: E. Bot.* t. 554. Leontodon *L.: Ed. Cat.* p. 7. L. hastile α. vulgaris *Koch:* Thrincia hisp. *Macreight Br. Bot.* (certainly not of *Roth*).

Meadows, pastures, and gravelly heaths, frequent. *Fl.* June, July. ♃.

2. A. *autumnális* Willd. (*autumnal Hawkbit*); scape branched scaly upwards, leaves lanceolate toothed or pinnatifid nearly glabrous, peduncles swoln beneath the somewhat downy involucres. Hedypnois, *E. Bot.* t. 830. Leontodon *L.* Oporinia *Less.: Ed. Cat.* p. 9. — β. involucre and upper part of the flowerstalk clothed with blackish hairs. Hieracium Taraxaci *L.* Apargia Tarax. *Willd., Sm., Hook.* (not of *Lois.* and others). Hedypnois, *E. Bot.* t. 1109. H. autumnale ε. *Huds.* A. pratensis *Link.* Oporina *Lois.*

Meadows and pastures, frequent. *Fl.* Aug. ♃. — *Involucre* cylindrical, and tapering gradually into the *pedicel*. *Flowers* moderately large, yellow. *Pappus* brownish-white. — *var.* β., the original *Hieracium Taraxaci* L., found by Dr. Solander in Lapland, proves to be only a var. of his *L. autumnale*, and is quite a different plant from the *Apargia Taraxaci* of *Willd.* and other continental authors, which has a pure white pappus with the outer series of hairs very short, and a short unbranched scape without scales.

5. Thríncia *Roth.* Thrincia.

Fruit tapering into a beak. *Pappus* of the florets within the leaves of the involucre forming a short scaly cup; of the rest long, feathery. *Receptacle* naked. *Involucre* imbricated. — Name: θριγκος, a *battlement*; from the resemblance of the seed-crown of the marginal florets to the battlements of a wall.

1. T. *hírta* Roth (*hairy Thrincia*); leaves lanceolate subsinuato-dentate somewhat hispid with frequently forked hairs, scapes single-flowered ascending glabrous as well as the involucre. *Hook. in Fl. Lond. N. S. cum Ic.*; *Ed. Cat.* p. 14. Apargia *Hoffm.*: *E. Fl.* v. iii. p. 352. Hedypnois, *E. Bot.* t. 555. Leontodon hirt. *L.*

Gravelly pastures and moors. *Fl.* July, Aug. ♃. — In small, starved specimens, the *leaves* are frequently runcinate. The outer *pericarps*, which have *scales* for a *pappus*, are often abortive and smooth; the inner ones are most beautifully striated and marked with raised dots.

6. Hypochǽris *Linn.* Cat's-ear.

Fruit striated, often beaked. *Pappus* feathery. *Receptacle* chaffy. *Involucre* oblong, imbricated. — Name from ὑπο, *for*, and χοιρος, a *hog*; the roots being eaten by that animal.

1. H. *glábra* L. (*smooth Cat's-ear*); nearly glabrous, involucre oblong regularly imbricated, stem branched somewhat leafy, radical leaves dentato-sinuate. *E. Bot.* t. 575; *Ed. Cat.* p. 7.

Fields and gravelly soils in many places, but not very common. *Fl.* July, Aug. ☉. — A foot or more high. *Leaves* oblong, slightly hairy. *Flowers* small, yellow. *Pappus* of the central *florets* stalked, that of the *circumference* sessile.

2. H. *maculáta* L. (*spotted Cat's-ear*); stem almost leafless solitary, leaves obovato-oblong undivided toothed (spotted above). *E. Bot.* t. 225; *Ed. Cat.* p. 7. Achyrophorus *Gært. DC.*

In open chalky and limestone pastures. Ormeshead, N. Wales. Dry woods, east of Forfar. *Fl.* July. ♃. — *Leaves* almost all radical, scabrous. *Stem* or *scape* with one, or rarely 3—5, large, deep yellow *flowers*, and 2 or 3 small lanceolate *scales* or *bracteas*, and, as well as the *involucre*, slightly hispid.

3. H. *radicáta* L. (*long-rooted Cat's-ear*); stem branched leafless glabrous, peduncles with small scales, leaves runcinate obtuse scabrous. *E. Bot.* t. 831; *Ed. Cat.* p. 7. Achyrophorus *Gært. DC.*

Meadows, pastures and way-sides, frequent. *Fl.* July. ♃. — *Leaves* all radical, spreading. *Stem* 1 ft. or more high. *Peduncles* a little thickened upward. *Flowers* rather large, yellow. *Pappus* stalked in *fruit*.

7. Lactúca *Linn.* Lettuce.

Fruit with a long beak. *Pappus* pilose. *Receptacle* naked. *Involucre* imbricated, cylindrical, few-flowered, its scales with a membranous margin. — Named from *lac*, *milk*, which flows from this and many plants of the tribe when broken.

1. L. *virósa* L. (*strong-scented Lettuce*); leaves patent oblong

toothed two-eared and amplexicaul at the base, their keel prickly, flowers panicled. *E. Bot.* t. 1957; *Ed. Cat.* p. 7.

Banks and way-sides, especially in a chalky soil. Rare in Scotland; about Edinb., Dunkeld, Coldstream, Melrose, and Stirling Castle. *Fl.* Aug. ♂. — *Stems* 3—4 feet high, erect, prickly, with distant *leaves*. *Root-leaves* obovate, numerous. — The plant abounds with a milky and narcotic juice, which is considered by some practitioners as a gentle and safe opiate. *Flowers* small, yellow.

2. L. *Scaríola* L. (*prickly Lettuce*); leaves nearly upright lanceolato-sagittate sinuated and ciliato-dentate, the keel prickly, panicle leafy. *E. Bot.* t. 268; *Ed. Cat.* p. 7.

Waste ground in Cambridgeshire. Southend, Essex; and (formerly) near Islington. *Fl.* Aug. ♃. — Of milder quality and paler colour than the last, with more upright *branches* and *leaves*. The *garden Lettuce* is *L. sativa* L., not a native.

3. L. *salígna* L. (*least Lettuce*); root-leaves lanceolate with few teeth, cauline ones linear-lanceolate entire sagittate, flowers lateral with small floral leaves. *E. Bot.* t. 707; *Ed. Cat.* p. 7.

Chalky waste ground near salt-marshes, in the south-east of England. *Fl.* Aug. ♂. — Whole *plant* slender; *branches* twiggy; the small *flowers* may be said to be almost spicate.

4. L. *murális* Less. (*Ivy-leaved Lettuce*); florets 5, leaves lyrato-pinnatifid and toothed the terminal lobe angled, panicle with divaricated branches. *Ed. Cat.* p. 7. Prenanthes *L.*: *E. Bot.* t. 457.

On old walls and in woods. *Fl.* July. ♃ or ♂. — *Stem* 2 feet high, panicled above. *Flowers* small, yellow.

8. Sónchus *Linn.* Sow-thistle.

Fruit transversely wrinkled, without a beak. *Pappus* pilose. *Receptacle* naked. *Involucre* imbricated with 2 rows of unequal at length connivent scales, tumid at the base. — Named σογχος, in Greek, from σομφος, *soft*, in allusion to the soft nature of the stems.

1. S. *alpínus* L. (*blue alpine Sow-thistle*); flower-stalks bracteas and involucre glanduloso-hispid racemose, stems glabrous below, leaves glabrous lyrate arrow-shaped at the base, terminal lobe very large deltoideo-hastate. *Ed. Cat.* p. 13. S. cæruleus *E. Bot.* t. 2425.

Rocky places, near rivulets. Loch-na-gar and Clova mountains, and in their vicinity: *G. Don.* "Found in five new stations in Glen Dole and Glen Isla by *Dr. Wight*, *Dr. Greene*, and *Dr. Greville*." *Fl.* July, Aug. ♃. — I cannot but agree with Wahlenberg in considering this to be the same as the true *alpinus* of Linn. I have gathered the plant at the head of the White-water in the Clova mountains; and on a comparison of those specimens with others of *S. alpinus* from Switzerland, for which I am indebted to Sir J. E. Smith himself, I find them identical.

2. S. *palústris* L. (*tall Marsh Sow-thistle*); flower-stalks corymbose and involucre glanduloso-hispid, leaves denticulate

runcinato-pinnatifid with few segments arrow-shaped at the base, upper ones simply sagittate. *E. Bot.* t. 933 ; *Ed. Cat.* p. 13.

Marshy places, rare. Isle of Ely. Greenwich and Blackwall. Croydon. Wouldham, Kent. *Fl.* July, Aug. ♃. — 6—8 feet high. *Flowers* large, yellow.

3. S. *arvénsis* L. (*Corn Sow-thistle*) ; flower-stalks corymbose and involucre glanduloso-hispid, leaves denticulate cordate at the base oblongo-lanceolate, lower ones sinuato-runcinate. *E. Bot.* t. 674 ; *Ed. Cat.* p. 13.

Corn-fields, frequent. *Fl.* Aug. ♃. — *Stems* 3—4 feet high. *Flowers* very large, yellow.

4. S. *oleráceus* L. (*common Sow-thistle*) ; flower-stalks subumbellate, involucre glabrous, leaves more or less pinnatifid, lower ones stalked, upper ones lanceolate sagittato-amplexicaul at the base, all dentato-ciliate, fruit cancellate. *E. Bot.* t. 843. — β. *asper ;* leaves with rounded auricles, lower ones sessile, fruit ribbed scarcely cancellate. S. oleraceus γ. and δ. *L. et Sm.* S. asper *Vill. ; Borr. in E. Bot. Suppl.* t. 2765 and 2766 ; *Ed. Cat.* p. 13.

α. and β. Waste places and cultivated ground, common. *Fl.* June —Aug. ☉. — 2—3 ft. high. *Flowers* small, yellow. *Involucre* conical when in seed. Mr. Borrer, and other accurate botanists, are of opinion that the β. is a distinct species.

9. Crépis *Linn.* Hawk's-beard.

Fruit narrower upwards, scarcely beaked, striated. *Pappus* pilose, copious, soft, mostly white, deciduous. *Receptacle* naked. *Involucre* scaly at the base. — Name : κρηπις, a *slipper*, or *last*, in Greek ; but why applied to this plant is not known.

1. C. *vírens* L. (*smooth Hawk's-beard*) ; leaves glabrous runcinate the upper ones linear-sagittate amplexicaul the margins plane, stem glabrous, panicle subcorymbose, fruit oblong shorter than the pappus which latter is almost as long as the involucre. *Ed. Cat.* p. 4. C. tectorum, *E. Bot.* t. 1111.

Dry pastures, roofs of cottages, &c. *Fl.* July. ☉. — *Stems* 1—3 feet high. *Radical leaves* more or less pinnatifid or runcinate, their teeth or segments often horizontal, sometimes curved upwards. *Flowers* small, yellow, outer scales of the involucre very narrow, hispid. Mr. Babington has clearly shown (*Linn. Trans.* v. xiii. p. 455), that the *C. tectorum*, of English authors, is the *C. virens* L.

2. C. *biénnis* L. (*rough Hawk's-beard*) ; leaves rough runcinato-pinnatifid their lobes toothed, involucre downy shorter than the pappus, fruit with a long beak, longer than the pappus. *E. Bot.* t. 149 ? *Ed. Cat.* p. 4.

Chalky pastures in England ; Kent, Suffolk, &c. Near Bangor, N. Wales : *Mr. W. Wilson. Fl.* June, July. ♂. — *Stems* 2—4 feet high, furrowed, rough above. *Flowers* much larger than in the preceding ;

outer scales of the involucre almost glabrous. *Pappus* very white, and upon a *fruit* so attenuated upwards as to form a stalk.[1]

3. C. *púlchra* L. (*small-flowered Hawk's-beard*); leaves downy toothed, radical ones oblong-obovate, the rest sagittato-amplexicaul, panicle corymbose spreading, fruit very obscurely striated slightly attenuated upwards about as long as the pappus, the latter equalling the glabrous involucre in length. *L.: E. Bot.* t. 2325; *Ed. Cat.* p. 4. Prenanthes hieraciifolia *Willd.*

Crumbling rocks on the hill of Turin, near Forfar, Scotland. *Fl.* June—Sept. ☉. — *Root-leaves* tapering into a foot-stalk; *cauline* ones broad, clasping the stem with their toothed bases; outer scales of the involucre very minute. I have never seen British specimens.

4. C. *succisæfólia* Tausch (*Succory-leaved Hawk's-beard*); stem tall panicled above, leaves oblong-obtuse nearly glabrous and entire the radical ones attenuated into a long petiole, fruit much striated compressed slightly narrower upwards as long as the pappus which latter is rather shorter than the involucre. *Ed. Cat.* p. 13. Hieracium *All.* H. molle *Jacq.: E. Bot.* t. 2210. H. Croaticum and Crepis hieracioides *W. et K.* Geracium Croaticum and succisæfolium *Reich.*

Woods; Scotland. Near Forfar, Falls of the Tummel, Glen Luss, also in Langton woods, and near Renton, Berwickshire. *Fl.* July, Aug. ♃. — This plant varies in the hairiness of its leaves, and is, I cannot

[1] Mr. Woods is of opinion that this plant is in reality *Barkhausia taraxacifolia* DC., distinguished especially by the long beak of its achenia, while those of *Crepis biennis* are, in the words of Gaudin, "neutiquam attenuata." The stem of *C. biennis* is also less branched, and more leafy, than that of *B. taraxacifolia*, the latter rarely producing a leaf, except where there is a branch. I have not the means of determining this point, and the difficulty is rendered greater from the circumstance that the English Bot. figure is quoted by De Candolle and Koch, and other authors, and indeed it seems to be the only representation of that species. The latter author, one of the most accurate of continental botanists, thus distinguishes *C. biennis* L.: — "Caule foliato apice corymboso, foliis dentatis v. runcinato-pinnatifidis, caulinis sessilibus subamplexicaulibus planis basi auriculato-dentatis, summis integerrimis, involucri foliolis omnibus oblongo-linearibus obtusiusculis cano-puberulis, exterioribus patulis, interioribus dorso hispidis glabrisve superficie interiori subsericeo-pilosis, acheniis apice angustioribus 13-striatis. —Variat caule foliisque hispidis, et subglabris, atque, ut omnes affines, magnopere quod divisionem foliorum attinet."—Barkhausia *taraxacifolia* Thuill. is thus distinguished by Koch: — "Caule erecto foliato apice corymboso, foliis runcinato-dentatis v. runcinato-pinnatifidis, pedunculis ante anthesin erectis, involucro canescente et sæpe hispido, fructifero pappum dimidium æquante, foliolis calyculi ovato-lanceolatis attenuatis glabris margine membranaceis, bracteis linearibus herbaceis angustè membranaceo-marginatis." Of the type of this species no figure is referred to, save *Lob. Ic.* t. 239. f. 2. Koch places it in a division, "Rostrum achenii mediocre, achenio brevius;" while De Candolle says of it, "Achænia attenuata in rostrum seminis longit. subæquans." The chief, if not the only, distinction seems to lie in the relative length of the rostrum and achenium (and that also determines the genera). Unfortunately the Linnæan specimens have the fruit immature. Mr Borrer has found on Madanscourt Hill, Kent, what Mr. Woods believes to be the true *C. biennis.*

doubt, notwithstanding the remarks of Sir J. E. Smith in *E. Fl.*, the true *H. succisæfolium* of Allioni, which Tausch has long ago (*Bot. Zeit.* v. ii. *Erganz.* p. 79.), together with the following species, referred to *Crepis.*

5. C. *paludósa* Mœnch (*Marsh Hawk's-beard*); glabrous, stem erect branched upwards and subcorymbose, radical leaves ovato-oblong runcinato-dentate attenuated into a foot-stalk, cauline ones lanceolate toothed heart-shaped at the base and amplexicaul much acuminated, involucre glanduloso-pilose, fruit striated scarcely narrower upwards, about as long as the pappus. *Ed. Cat.* p. 4. Hieracium *L.: E. Bot.* t. 1094. Geracium *Reich.* Aracium *Monn.*

Frequent in moist woods and rocky places. *Fl.* Aug. ♃.

10. Borkhaúsia *Mœnch.* Borkhausia.

Fruit transversely wrinkled, with a long subulate beak. *Pappus pilose. Receptacle* naked. *Involucre* oval, with deciduous subulate scales, at length ribbed and furrowed. — Named in honour of *Moritz Borkhausen*, a German Botanist.

1. B. *fœtida* DC. (*stinking Borkhausia*); leaves scabrous sessile runcinato-pinnatifid upper ones lanceolate cut at the base, stem hairy, involucre downy. *Ed. Cat.* p. 2. Crepis fœtida *L.: E. Bot.* t. 406.

Dry chalky ground; Cambridgeshire, Norfolk and Kent. *Fl.* June, Jul. ♂. — *Stem* spreading. *Corollas* red externally. The herb is very milky, and said to diffuse a smell resembling bitter almonds. — (See remarks on *B. taraxacifolia* under *Crepis biennis.*)

11. Hierácium *Linn.* Hawkweed.

Fruit angular, furrowed, with an entire or toothed margin at the top. *Pappus* pilose, in one row, sessile, frequently brownish, persistent. *Receptacle* nearly naked, dotted. *Involucre* imbricated. — Name: ἱεραξ, a *hawk;* because birds of prey were supposed to employ this plant to strengthen their powers of vision.

* *Scape leafless or rarely with one leaf, single-flowered.*

1. H. *alpínum* L. (*alpine single-flowered Hawkweed*); scape single-flowered nearly leafless hairy as well as the oblongo-lanceolate almost entire leaves, involucre thickly clothed with long silky hairs. *E. Bot.* t. 1110; *Ed. Cat.* p. 6. — β. taller, radical leaves toothed. H. Halleri, and H. hybridum *Vill.* H. villosum *Sm.: E. Bot.* t. 2379. (*not of Jacq. Austr.* t. 87.)

Elevated rocky mountains, especially in Scotland. Snowdon. Near Llyn-y-Cwn, N. Wales. — β. Highland mountains of Scotland. *Fl.* July, Aug. ♃. — 4—6 or more inches high. *Leaves* with numerous, whitish hairs, especially at the base, where they taper into *petioles. Hairs* on the upper part of the *scape*, black at the base, and often mixed with minute, black glandulose ones. *Involucre* thickly clothed all over with

dingy-coloured or fulvous long silky hairs. *Flower* always solitary, large, of a full yellow.

2. H. *Pilosélla* L. (*common Mouse-ear Hawkweed*); scape one-flowered leafless, leaves entire elliptico-lanceolate hairy, downy beneath, scyons creeping. *E. Bot.* t. 1093; *Ed. Cat.* p. 6. — β. Pelleterianum *Bab.* H. Pelleterianum *DC.*

Banks and dry pastures, frequent. — β. Craig Breddin. *Fl.* May—July. ♃. — Distinguishable, at all times, by its creeping *scyons*. *Flowers* of a pale lemon-yellow.

** *Scapes leafless or rarely with one leaf, many-flowered.*

3. H. * *dúbium* L. (*branching Mouse-ear Hawkweed*); scape many-flowered leafless (or with 1 small leaf), leaves entire elliptico-lanceolate with only a few scattered hairs, scyons creeping. *E. Bot.* t. 2352; *Ed. Cat.* p. 6.

Said to have been found in Westmoreland and Scotland. *Fl.* July. ♃. — Taller and slenderer than the last, with smaller *flowers*.

4. H. * *aurantíacum* L. (*orange Hawkweed*); scape nearly leafless simple hairy bearing a corymb of many flowers, leaves obovato-lanceolate entire rough with longish hairs. *E. Bot.* t. 1469; *Ed. Cat.* p. 6.

Woods in Banffshire and near Tarref. Coalston woods, E. Lothian. Woods east of Kenmore. Failsworth, near Manchester. *Fl.* July. ♃. — *Hairs* long on the upper part of the *scape;* black at the base, as they are upon the *involucre;* sometimes all black, hence often called *Grim-the-Collier*. *Flowers* deep orange.

5. H. **Aurícula* L. (*orange Mouse-ear Hawkweed*); "leaves lanceolate acute nearly entire coarsely hairy green on both sides, scyons scarcely so long as the leaves, scape downy and hairy corymbose, calyx shaggy." *E. Bot.* t. 2368; *Ed. Cat.* p. 6.

On Dalehead, near Grassmere, Cumberland: *Hudson*. *Fl.* July. ♃.

*** *Stem with few* (1 or 2) *leaves, many-flowered.*

6. H. *murórum* L. (*Wall Hawkweed*); stem with 1 petiolated leaf branched upwards subcorymbose downy especially beneath the involucre where are a few black glands, radical leaves ovate mostly toothed at the base and hairy as well as the longish petioles, involucre downy. *E. Bot.* t. 2082; *Ed. Cat.* p. 6. — β. *pulmonarium;* softer and more hairy especially about the base of the stem and petioles of the leaves, which latter are narrower tapering gradually into a footstalk and more toothed. *Ed. Cat.* p. 6. H. pulmonarium, *E. Bot.* t. 2307. H. Halleri *Hook. in Fl. Lond. N. S.* t. 215. (*excl. syn.*) — γ. *Lawsoni;* leaves nearly entire and as well as the petioles very silky. *Ed. Cat.* p. 6. H. Lawsoni, *E. Bot.* t. 2083. (*an Vill.?*) — δ. small, almost glabrous, rigid, single-flowered. — ε. small, flaccid, single-flowered, involucre with copious black hairs.

Woods, walls, and rocks, common. — β. valleys of Scotland. — γ. elevated mountains. — δ. Clova mountains: *Drummond*. — ε. mountains near

Glenshee : *Jos. D. Hooker.*—In a former edition of this work I had suggested that the *H. Lawsoni* and *pulmonarium* Sm. were probably only *vars.* of *H. murorum*, and a more careful examination of the genus has but served to strengthen this opinion. The varieties indeed of this plant are almost endless; and when the stem is more than usually leafy, it seems almost to pass into the following. Mr. Ward finds it at Aysgarth Force, Yorkshire, with larger *flowers* than usual.

**** *Stem with many leaves, many-flowered.*

7. H. *sylváticum* Sm. (*Wood Hawkweed*); stem with several leaves branched upwards and subcorymbose slightly hairy and more or less downy beneath the involucre, leaves ovato-lanceolate or lanceolate toothed with the sharp teeth pointing upward somewhat hairy, involucre with very short pubescence. *Hook. Scot.* i. p. 231; *Ed. Cat.* p. 6. — α. leaves green ovato-lanceolate with small teeth. *Hook.* l. c. H. sylvaticum, *E. Bot.* t. 2031. H. vulgatum *Fries.* H. murorum α. *Sm. Fl. Brit.* p. 830. — β. leaves ovato-lanceolate spotted with dark purple, with large teeth. *Hook.* l. c.; *Ed. Cat.* p. 6. H. maculatum, *E. Bot.* t. 2121. — γ. leaves lanceolate spotted and clouded with purple. *Hook.* l. c. H. pictum *Schleich.*

Mountain woods, walls and banks, frequent — β. and γ. not rare in Scotland. *Fl.* Aug. ♃. — 1—2 ft. high, scarcely hairy on the *stem*. The *leaves* are usually numerous, more or less distinctly toothed. Mr. Banks finds it, near Plymouth, with quite entire foliage.

8. H. *cerinthoídes* L. (*Honeywort-leaved Hawkweed*); stem corymbose hairy with fulvous hairs, glandular upwards, leaves glaucous hairy very slightly toothed, radical ones oblongo-obovate petiolate, cauline ones oblong semiamplexicaul, involucre hairy. *E. Bot.* t. 2378; *Ed. Cat.* p. 6.

Rocks in the Highlands, not uncommon: *G. Don. Fl.* Aug. ♃.— I have never seen a native specimen, except the one for which I am indebted to *Mr. D. Don;* it, however, quite agrees with Gouan's original Pyrenean ones. *Flowers* large, handsome,

9. H. **amplexicaúle* L. (*amplexicaul Hawkweed*); glandulo-so-pilose, stem corymbose, leaves toothed, radical ones oblongo-ovate petiolate, cauline ones cordate at the base amplexicaul. *Hook. in E. Bot. Suppl.* t. 2690; *Ed. Cat.* p. 6.

Walls of the Castle of Cleish, Kinross-shire. Clova mountains. On the walls of the Oxford Bot. Garden: *Mr. Bicheno. Fl.* Aug. ♃.—A perfectly distinct and well-marked species, everywhere clothed with brownish glandular hairs, most dense on the *peduncle* and *involucre*. The lower cauline *leaves* are more or less oblong, the upper ones are truly cordate.

10. H. *denticulátum* Sm. (*small-toothed Hawkweed*); "stem erect leafy solid many-flowered cymose with downy glandular stalks, leaves sessile elliptic-lanceolate finely toothed nearly glabrous glaucous beneath." *E. Bot.* t. 212; *Ed. Cat.* p. 6. H. prenanthoides *Sm. Fl. Br.* p. 835. (*not Vill.*)

Woods at Loch Rannoch, Perthshire : near Selkirk; and Findhorn, Elgin. *Fl.* July, Aug. ♃.—Is this really distinct from the following?

11. H. *prenanthoides* Vill. (*rough-bordered Hawkweed*); stem erect leafy simple hairy, panicle corymbose with hispid and glandular stalks, leaves oblong-cordate, and amplexicaul at the base, upper ones gradually smaller and ovato-cordate acuminate, all glaucous beneath, and remotely toothed. *E. Bot.* t. 2235. *Ed. Cat.* p. 6.

River-sides in Scotland ; but rare. Banks of the Esk; near Pitmain ; in Glen Lyon, and banks of the Don, in Braemar. *Fl.* Aug. ♃.—3—4 feet high, the *leaves* all cordate at the base, and remarkably amplexicaul, gradually smaller upwards. *Involucre* with black glandular hairs.

12. H. *Sabaúdum* L.? (*shrubby broad-leaved Hawkweed*); stem erect copiously leafy mostly hairy, branches subcorymbose, leaves ovato-lanceolate slightly hairy toothed the lower ones tapering into a short petiole, involucre slightly hairy and as well as the peduncles destitute of glands. *E. Bot.* t. 349 (*an L.?*); *Ed. Cat.* p. 6. H. boreale *Fries.* H. sylvestre *Tausch.*

Coppices, groves, thickets and walls ; frequent. *Fl.* Aug. Sept. ♃. — Smith's figure of this plant is surely not characteristic of the true *H. Sabaudum.* It is indeed the *H. boreale* of Fries, and scarcely differs from some states of *H. prenanthoides*, except in the absence of glandular hairs on the involucre and peduncles.

13. H. *umbellátum* L. (*narrow-leaved Hawkweed*); stem erect simple rigid very leafy, leaves lanceolate or linear-lanceolate subglabrous slightly toothed, flowers subumbellate, peduncles downy, involucres glabrous. *E. Bot.* t. 1771 ; *Ed. Cat.* p. 6. — β. leaves broader.

Groves, or stony and rocky places. — β. Dunkerran, Co. Kerry : *Dr. Taylor*, who sends it as *H. Sternbergii. Fl.* Aug. Sept. ♃.—The most decidedly marked of any individual in this troublesome genus.

12. Leóntodon *Linn.* Dandelion.
(Tab. III.)

Fruit with a very long slender beak. *Pappus* pilose. *Receptacle* naked. *Involucre* imbricated with scales, of which the outermost are frequently lax and flaccid. — Named from λεον, a *lion*, and οδους, a *tooth*, from the tooth-like margins of the leaves.

1. L. *Taráxacum* L. (*common Dandelion*); outer scales of the involucre reflexed, leaves runcinate glabrous toothed. *E. Bot.* t. 510. Taraxacum officinale *Ed. Cat.* p. 14. Taraxacum Dens Leonis *Hall., DC.* — β. scales of the involucre erect appressed. L. palustre *Sm. E. Bot.* t. 553.

Meadows and pastures, common. — β. Wet open pastures and moors.

13. Lapsána *Linn.* Nipple-wort.

Fruit compressed, striated. *Pappus* 0. *Receptacle* naked. *Involucre* in a single row of erect scales, with small ones at the base.—Named from λαπαζω, to *purge*, from its laxative qualities.

1. L. *commúnis* L. (*common Nipple-wort*); involucre of the fruit angular, stem panicled, peduncles slender, leaves ovate or cordate petiolate angulato-dentate. *E. Bot.* t. 844; *Ed. Cat.* p. 7.

Waste and cultivated ground, common. *Fl.* July, Aug. ⊙.—*Stems* 2 — 4 feet high. *Leaves* soft and thin, slightly hairy ; the *radical* ones more or less lyrate. *Flowers* small, yellow.

2. L. *pusílla* Willd. (*dwarf Nipple-wort*); scape branched very thick and fistulose upwards, leaves obovato-oblong toothed. *Hook. in Fl. Lond. N. S.* t. 65. L. minima *DC.* Hyoseris *L.: E. Bot.* t. 95. Arnoseris pusilla, *Ed. Cat.* p. 2.

Corn-fields, in gravelly soils. *Fl.* June, July. ⊙. — *Scapes* 6 — 8 inches high, more or less branched, remarkable for their clavate and fistulose extremities. *Flowers* small, yellow.

14. Cichórium *Linn.* Succory.

Fruit turbinate, striated. *Pappus* sessile, scaly, shorter than the fruit. *Receptacle* naked or slightly hairy. *Involucre* of 8 scales, surrounded by 5 smaller ones at the base. (Flowers *blue.*) — Name: *chikoùryeh*, in Arabic. The Egyptians eat a vast quantity of this vegetable.

1. C. *Intybus* L. (*wild Succory*); flowers sessile axillary in pairs, leaves runcinate. *E. Bot.* t. 539; *Ed. Cat.* p. 4.

Borders of fields and waste places; chiefly in a light, gravelly or chalky soil. *Fl.* July, Aug. ♃. — *Stem* 1 — 3 ft. high, erect, branched, *Flowers* numerous, large, bright but pale blue. — The *Endive* or *Succory* of the gardens is *C. Endivia*, supposed to be a native of India. The specific name of both is derived from the Arabic *Hendibeh*.

Tribe II. Cynarocephalæ. Artichoke or Thistle Tribe.

All the corollas tubular, 5-cleft, generally inflated below the mouth, and spreading so as to form a nearly hemispherical head, uniform (rarely dicœcious), or, as in Centaurea, with those of the circumference irregular, still tubular and neuter. Style articulated below its branches. Gen. 15—22. (See Tab. IV. A. B.[1])

15. A'rctium *Linn.* Burdock.

Fruit 4-sided. *Pappus* short, pilose. *Receptacle* chaffy. *Involucre* globose, the scales with an incurved hook at the point. — Name: αρκτος, a *bear*, from the coarse texture of the involucres.

[1] This, like the preceding, is a very natural tribe, deriving its name from *Cynara*, the *Artichoke*, which, as well as the Thistles, will give a good idea of the general aspect or appearance of all in the group; and it will be well to con-

1. A. *Lappa* L. (*common Burdock*); leaves cordate stalked. — *α.* involucre glabrous. A. Lappa, *E. Bot.* t. 38; *Ed. Cat.* p. 2. — *β.* involucre with a cobweb like down. A. Bardana *Willd.*: *E. Bot.* t. 2478; *Ed. Cat.* p. 2.

Waste places and way-sides, common. *Fl.* July, Aug. ♂. — Three feet or more high. Radical *leaves* very large and often slightly toothed. *Involucre* with hooked scales, which fasten themselves most pertinaciously to clothes and the coats of animals. These *scales* are sometimes glabrous, and occasionally have a more or less abundant cottony substance interwoven with them; whence two species have been established by some authors. *Flowers* purple. Mr. Borrer, and other botanists whose opinion is of great weight, consider *A. Lappa* and *Bardana* distinct species. De Candolle divides them into three, but, as it appears to me, with very unsatisfactory characters.

16. Serrátula *Linn.* Saw-wort.

Diœcious. *Fruit* obovate. *Pappus* in 3—4 rows, of which the interior is the longest. *Receptacle* bristly or chaffy. *Involucre* oblong, imbricated with unarmed scales. *Anthers* muti-

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sider this, for, in the following tribe (*Corymbiferæ*), there are some genera which have wholly tubular florets, but they are quite distinct in appearance from the present, and, upon looking a little carefully into their structure, we shall find that they may be further distinguished from the Thistle tribe by the heads being generally nearly level-topped, the corollas not inflated below their mouth, and by the style not being articulated. Examples of the present group will be seen at

Tab. IV. A. Fig. 1. Head of flowers of the genus *Carduus*, or true *Thistle*, with the spreading uniform tubular florets within the involucre.

Fig. 2. represents the involucre cut through vertically, to show the receptacle, upon which are a great number of bristles, all the florets being removed from the receptacle but one.

Fig. 3. A floret from the receptacle, showing at the base the ovary or germen, crowned by the pappus or limb of the calyx, within which is the tubular corolla, inflated below the mouth, and including the stamens and articulated style, with its branches and stigmas.

Fig. 4. Summit of the style, showing the articulation (in this instance clothed by a circle of hairs) and stigmas.

Fig. 5. The fruit, crowned with its pappus.

Fig. 6. Hair or bristle of the pappus.

All but fig. 1. more or less *magnified.*

Tab. IV. B. Fig. 1. Head of flowers of the genus *Centaurea*, with the spreading tubular florets, of two kinds, within the involucre.

Fig. 2. Floret from the centre. At its base is the germen or ovary and pappus; within the latter is the corolla, tubular, regular, perfect (having stamens and pistil), inflated below the mouth, and including the stamens and style, the latter articulated just below its branches, which bear the stigmas.

Fig 3. Fruit of No. 2. with its pappus.

Fig. 4. Floret from the circumference, neuter (having neither stamens nor pistil); at its base is an abortive germen (no pappus) upon which is seated the tubular, 5-cleft, but somewhat irregular corolla.

Fig. 5. Involucre cut through, showing the receptacle and bristles, the florets all removed.

All but fig. 1. more or less *magnified.*

cous. — Name; *serrula,* a little *saw,* which the margins of the leaves represent.

1. S. *tinctória* L. (*common Saw-wort*); leaves entire pinnatifid finely serrated, outer scales of the involucre ovate appressed, inner ones linear coloured. *E. Bot.* t. 38; *Ed. Cat.* p. 12.

Thickets and pastures, less frequent in Scotland. *Fl.* Aug. ♃.—2—3 ft. high, branched, stiff. *Flowers* purple. — It dyes cloth yellow.

17. Saussúrea *De Cand.* Saussurea.

Pappus double, sessile; *ext.* of short rough bristles; *inner* feathery. *Receptacle* bristly or chaffy. *Involucre* oblong, imbricated with unarmed scales. *Anthers* below setose. — Named in honour of the two *Saussures,* father and son.

1. S. *alpína* DC. (*alpine Saussurea*); leaves toothed cottony beneath lanceolate, those of the root ovato-lanceolate stalked, flowers in a clustered umbel. *E. Bot.* t. 599; *Ed. Cat.* p. 12.

Moist alpine rocks. Snowdon. Frequent on the Highland mountains of Scotland. *Fl.* Aug. ♃. — *Stem* 8 — 12 inches high, erect, simple, woolly. *Leaves* few upon the stem. *Flowers* rather large, purple.

18. Cárduus *Linn.* Thistle.
(Tab. IV. A.)

Pappus pilose, not feathery, united by a ring at the base, and deciduous. *Receptacle* bristly. *Involucre* tumid, imbricated with spinous scales. — Name: Théis derives this from *ard,* in Celtic, a *point;* whence also ἀρδος, in Greek; *arduus,* in Latin, &c.

* *Leaves decurrent.*

1. C. *nútans* L. (*Musk Thistle*); leaves decurrent spinous, flowers drooping, scales of the involucre lanceolate cottony, outer ones spreading. *E. Bot.* t. 1112; *Ed. Cat. p.* 3.

Waste ground in dry, stony, or chalky soils. *Fl.* July, Aug. ♂. (⊙. *Sm.*)—2—3 feet high, not much branched, cottony, interruptedly winged. *Leaves* oblong, deeply sinuated. *Flowers* solitary, large, handsome, purple; said to smell powerfully of musk in warm weather; most so in the evening, according to Lightfoot.

2. C. *acanthoídes* L. (*welted Thistle*); leaves decurrent sinuated spinous, involucre globose nearly sessile, its scales linear slightly recurved. *E. Bot.* t. 973; *Ed. Cat.* p. 3. C. polyacanthos *Curt.* C. crispus L.

Way-sides and waste places; varying with *white flowers. Fl.* June, July. ⊙.—3—4 feet high, uninterruptedly winged, branched. *Flowers* clustered at the ends of the branches, deep purple.

3. C. *tenuiflórus* Curt. (*slender-flowered Thistle*); leaves decurrent sinuated spinous somewhat cottony beneath, involucres

nearly cylindrical clustered sessile, their scales lanceolate erect. *E. Bot.* t. 412; *Ed. Cat.* p. 3.

Waste sandy places, especially near the sea, about towns. *Fl.* June, July. ⊙.—2—4 feet high, winged the whole way up the *stem* with the decurrent bases of the *leaves*.

** *Leaves sessile.*

4. C. *Mariánus* L. (*Milk Thistle*); leaves amplexicaul waved spinous the radical ones pinnatifid, scales of the involucre subfoliaceous recurved spinous at the margin. *E. Bot.* t. 976. Silybum *Gært. DC.: Ed. Cat.* p. 13.

Banks and waste places; rare in Scotland. About Edinburgh, and on Dumbarton rock. *Fl.* July. .—3—5 feet high. Distinguishable at once by the milky veins on its *leaves*, and the great recurved *scales* of the *involucre*. A drop of the Virgin Mary's milk was considered to have produced these white veins, as that of Juno was fabled to be the origin of the *milky way*.

19. Cnícus *Linn.* Plume-thistle.

Pappus feathery, united by a ring at the base and deciduous. *Receptacle* bristly. *Involucre* tumid, imbricated with spinous scales. — Named from κνιζω, to *prick* or *wound*.

* *Leaves decurrent.*

1. C. *lanceolátus* Willd. (*Spear Plume-thistle*); leaves decurrent hispid pinnatifid, their segments generally two-lobed spreading spinous, involucres ovate tomentose, their scales lanceolate spreading. Carduus *L.: E. Bot.* t. 107; *Ed. Cat.* p. 3.

Way-sides and pastures, frequent. *Fl.* July, Aug. ♂.—3—4 feet high. *Leaves* downy beneath; their points long and very sharp. *Flowers* standing singly, large.

2. C. *palústris* Willd. (*Marsh Plume-thistle*); leaves decurrent scabrous pinnatifid spinous, involucres ovate clustered, their scales ovato-lanceolate mucronate appressed. Carduus *L.: E. Bot.* t. 974; *Ed. Cat.* p. 3.

Moist meadows and shady places, frequent. *Fl.* July. ♂.—4—6 ft. high, erect, copiously clothed with rather short spines. Remarkable for its clustered heads of *flowers*, whose *involucres* have the *scales* broad, appressed, keeled and mucronated.

** *Leaves sessile, or nearly so.*

3. C. *arvénsis* Hoffm. (*creeping Plume-thistle*); leaves sessile pinnatifid spinous, stem panicled, involucre ovate its scales appressed mucronated. Carduus *Curt.: E. Bot.* t. 975; *Ed. Cat.* p. 3. Serratula *L.*

Fields and by way-sides, too abundant. *Fl.* July. ♃.—1—3 feet high. *Root* very creeping. *Stems* angular, but not winged.

4. C. *Fórsteri* Sm. (*branching Bog Plume-thistle*); "leaves slightly decurrent pinnatifid spinous downy beneath, stem panicled hollow, involucre ovate rather cottony, outer scales spinous." *E. Fl. v.* iii. p. 390. Carduus Forsteri, *Ed. Cat.* p. 3.

Formerly found in boggy woods, near Frant, Sussex, 2 miles from Tunbridge Wells. Gargle wood, and Gargle West Field, on the farm of Mays, 3 m. south of E. Grimstead: *Rev. W. H. Coleman.* Whitemoon Pond, between Guildford and Worthing, Surrey: *H. C. Watson, Esq.* Ditchling Common, Sussex: *W. Borrer, Esq.* Gareagh, Derry: *Mr. D. Moore.* *Fl.* July, Aug. ♃. — "The *fructification* most accords with that of the last two species, while the *herbage* and *habit* approach some of the following, or rather the exotic *Cn. rivularis*, Willd." *Sm.* — Mr. Borrer suspects it to be a hybrid production between *C. pratensis* and *C. palustris*.

5. C. *eriόphorus* Willd. (*woolly-headed Plume-thistle*); leaves sessile pinnatifid every alternate segment pointing upwards spinous scabrous, involucres sphærical woolly. *Hook. Scot.* i. p. 237. Carduus *L.*: *E. Bot.* t. 386; *Ed. Cat.* p. 3.

Waste ground and road-sides, in chalky and limestone soil. Rare in Scotland. Near Edinb.; Dumbarton and in Appin. *Fl.* July. ♂. — *Stems* much branched, furrowed, 2 feet high; the stoutest of the genus. *Leaves* acuminated, white and downy beneath; their lobes alternately pointing upwards and downwards, and terminated by sharp *spines*. *Involucre* very large; its *scales* linear, mucronate, much interwoven with a woolly substance.

6. C. *tuberósus* Willd. (*tuberous Plume-thistle*); "leaves deeply pinnatifid lobed fringed with prickles, lower ones on long stalks, stem almost single-flowered without wing or prickles, scales of the involucre minutely spinous nearly glabrous, root creeping tuberous." *E. Bot.* t. 2562; *Ed. Cat.* p. 3.

In a copse-wood, called Great Ridge, on the Wiltshire downs, between Boyton House and Fonthill, abundantly: *A. B. Lambert, Esq.* *Fl.* Aug. ♃. — A most distinct and handsome species.

7. C. *heterophýllus* Willd. (*melancholy Plume-thistle*); leaves semi-amplexicaul lanceolate soft ciliato-dentate undivided or laciniated white and downy beneath, flowers mostly solitary. Carduus *L.*: *E. Bot.* t. 675; *Ed. Cat.* p. 3.

Moist mountain pastures in the north, frequent. *Fl.* July. ♃. — 2—3 ft. high. *Stems* striated, and, as well as the under side of the *leaves*, covered with a white cottony down. *Leaves* mostly radical and petiolated. *Involucre* dark green; its *scales* lanceolate, acuminate, but not spiny.

8. C. *praténsis* Willd. (*Meadow Plume-thistle*); upper leaves sessile lanceolate soft waved at the edge and unequally spinous pubescent cottony beneath, flowers mostly solitary. Carduus *Huds.*: *E. Bot.* t. 177; *Ed. Cat.* p. 3.

Low wet pastures. Rare in Scotland; Isla and Arran. *Fl.* July. ♃. — About 1 foot high. *Leaves* waved, toothed and spiny. *Flowers* solitary. *Scales* of the *involucre* with short spines, lanceolate, closely imbricated, cobwebbed.

9. C. *acaúlis* Willd. (*dwarf Plume-thistle*); stemless, involucre glabrous. Carduus *L.*: *E. Bot.* t. 161; *Ed. Cat.* p. 3.

Frequent and destructive in dry gravelly or chalky pastures, in some parts of England; as Dorsetshire and Norfolk. Rare in Scotland. *Fl.* July. ♃. — *Leaves* spreading close to the ground, oblong, pinnatifid, segments lobed and spinous, glabrous. From the centre of these *leaves* arises one sessile, purple *flower*. *Involucre* obovato-cylindrical, imbricated with close, appressed, lanceolate, acute, greenish *scales*, not spinous.

20. Onopórdum *Linn.* Cotton-thistle.

Fruit 4-angled. *Pappus* pilose, rough, united into a ring at the base, and deciduous. *Receptacle* honey-combed. *Involucre* tumid, imbricated; the scales spreading and spinose. — Name: *ονος*, an *ass*, and *περδω*, *pedere*; such being the effect, according to Pliny, upon the ass which eats of it.

1. O. *Acánthium* L. (*common Cotton-thistle*); scales of the involucre spreading subulate, leaves ovato-oblong sinuated and spinous decurrent woolly on both sides. *E. Bot.* t. 977; *Ed. Cat.* p. 9.

Waste-ground, road-sides, &c. in a gravelly soil. Less frequent in Scotland. *Fl.* Aug. ♂. — 4—6 feet high, branched and winged at the summit; wings very spinous. *Involucre* globose. *Flowers* purple. The seeds of this and of others of the Thistle tribe are much eaten by birds. It is *cultivated* in Scotland as the *Scotch Thistle*.

21. Carlína *Linn.* Carline-thistle.

Pappus feathery. *Receptacle* chaffy. *Involucre* imbricated, tumid, the outer scales with numerous spines, the inner coloured, spreading, resembling a ray. — Name: the same as *Carolina*, from a tradition that the root was shown by an angel to *Charlemagne*, as a remedy for the plague which prevailed in his army.

1. C. *vulgáris* L. (*common Carline-thistle*); stem many-flowered corymbose pubescent, leaves lanceolate unequally spinous and sinuated downy beneath. *E. Bot.* t. 1144; *Ed. Cat.* p. 3.

Dry hilly pastures, and fields. Rare in the West of Scotland; Benmanhead, Isle of Arran. *Fl.* June. ♂. — One foot high; very spinous, but the spines generally short. *Ext. scales* or *leaflets* of the *involucre* much resembling the *leaves*, but smaller; *inner ones* linear, membranous, yellow, entire, spreading and forming an horizontal ray around the purplish *florets*. *Anthers* with two bristles at the base.

22. CENTAURÉA *Linn.* Knapweed, Blue-bottle, and Star-thistle.
(Tab. IV. B.)

Pappus pilose, or 0. *Receptacle* bristly. *Involucre* imbricated. *Florets* of the disk perfect; of the circumference narrow, funnel-shaped, irregular, sterile, longer than those of the disk (sometimes wanting). — So named, because with this plant it is said the *Centaur Chiron* cured himself of a wound received in the foot from Hercules.

1. C. *Jácea* L. (*brown radiant Knapweed*); scales of the involucre scariose torn the outer pinnatifid, leaves linear-lanceolate the lower ones broader and toothed, flowers radiant, pappus very short in a single row. *E. Bot.* t. 1671; *Ed. Cat.* p. 3.

Hedges and waste places; Sussex. Frequent in Angus-shire. Near Belfast. *Fl.* Aug. Sept. ♃. — *Lower leaves* obovato-lanceolate, petioled, toothed; *upper* ones entire, sessile. *Scales* of the *involucre* pale brown, shining, the outer ones deeply pinnatifid, the inner, or uppermost, torn; in which respects it differs strikingly from C. *nigra*. *Florets* very numerous, spreading, purple.

2. C. *nígra* L. (*black Knapweed*); scales of the involucre ovate closely and deeply fringed with spreading capillary teeth, lower leaves angulato-dentate sublyrate, upper ones lanceolate, with or without a ray, pappus very short tufted. *E. Bot.* t. 278. — β. flowers radiant. C. nigrescens *Willd.*

Meadows and pastures, frequent. *Fl.* June—Aug. ♃. — *Stem* 2—3 feet high. *Leaves* scabrous. *Scales* of the *involucre* almost black, the teeth brown. *Florets* purple, numerous. Sir J. E. Smith describes the scales of the calyx as having erect teeth or ciliæ, which I do not find to be the case. The radiated *var.* appears not to be uncommon both in England and Scotland.

3. C. *Cýanus* L. (*Corn Blue-bottle*); scales of the involucre serrated, leaves linear-entire the lowermost toothed. *E. Bot.* t. 277; *Ed. Cat.* p. 3.

Corn-fields, frequent. *Fl.* July, Aug. ☉. — 2—3 feet high, covered with a loose, cottony down, especially on the stems and under-side of the *leaves*. *Florets* of the *disk* small, purple; of the *ray* few, larger, bright blue, spreading. *Scales* of the *involucre* greenish, their margins brown.

4. C. *Scabiósa* L. (*greater Knapweed*); scales of the involucre ciliated ovate downy, leaves roughish pinnatifid, segments lanceolate acute. *E. Bot.* t. 56; *Ed. Cat.* p. 3.

Barren pastures, corn-fields, and road-sides. *Fl.* July, Aug. ♃. — 2—3 feet high, erect, much branched. *Involucres* globose, very large, their *scales* cottony, almost black, the fringe pale.

5. C. *Isnárdi* L. (*Jersey Star-thistle*); scales of the involucre with palmated spines, leaves somewhat lyrate and scabrous toothed slightly amplexicaul, flowers terminal solitary

with one or more leaves at the base. *E. Bot.* t. 2256; *Ed. Cat.* p. 3.

Pastures in Jersey and Guernsey. *Fl.* July, Aug. ♃.

6. C. *Calcítrapa* L. (*common Star-thistle*); flowers mostly sessile lateral, scales of the involucre spinulose at the base, ending in a long broad spine, stem divaricated, leaves unequally pinnatifid spinuloso-dentate. *E. Bot.* t. 125; *Ed. Cat.* p. 3.

Gravelly, sandy, and waste places, in the middle and S. of England; especially near the sea. *Fl.* July, Aug. ☉. — *Flowers* purple. — The specific name is derived from the English word, *Caltrops*, (an instrument of war with long points), latinised.

7. C. **solstitiális* L. (*yellow Star-thistle, St. Barnaby's-thistle*); flowers terminal solitary, scales of the involucre palmato-spinose at the base, ending in a long slender spine, stem winged from the decurrent bases of the lanceolate unarmed leaves, radical leaves lyrato-pinnatifid. *E. Bot.* t. 243; *Ed. Cat.* p. 3.

Occasionally seen in fields and waste places, principally in the E. and S. of England, and near Dublin. *Fl.* July—Sept. ☉. — *Flowers* yellow, as are the slender, needle-like *spines* of the *involucre*.

Tribe III. Corymbiferæ.

Florets all tubular and uniform, but erect, crowded and parallel, forming a nearly level top (Tab. V. A.), *or furnished with a ray consisting of ligulate florets* (Tab. V. B., and Tab. VI.). *Style not articulated beneath its branches.* Gen. 23—46. (See Tab. V, VI.[1])

[1] This tribe is an extensive one, and at first sight will appear less natural and less recognisable by the inexperienced eye, than the two former tribes. The greater number of the genera and species which compose it, have radiate flowers, and then they are readily distinguished. Of this we have very familiar examples in the *Daisy* (Tab. V. B.), the *Ox-eye* and the *Leopard's-bane* (Tab. VI.): but in many cases the ray is so small as to be hardly perceptible, as in the *Cud-weeds*; or it is wholly wanting, as in the *Hemp-agrimony*, *Bur-marigold*, and in the *Diotis* or *Cotton-weed* (Tab. V. A.). In these latter then the florets are all tubular; but the student will observe that the florets do not spread as in the *Thistle tribe*; that the corolla is not remarkably inflated below the mouth, nor is the style articulated; and he would never think of arranging any one of them with the Thistles. A reference to our figures and a comparison of them with the figures of the two preceding tribes, will show at once the essential distinctions.

Tab. V. A. Fig. 1. Head of flowers of *Diotis*: the florets all tubular, erect, crowded, parallel (not spreading), surrounded by the scaly and woolly involucre.

Fig. 2. Involucre cut open, showing the chaffy receptacle bearing the florets.

Fig. 3. Single floret taken from the receptacle, with its chaffy scale. Within the fringed scale is seen, at the base of the floret, the germen (destitute of pappus), upon which is the tubular corolla, with its two curious ears at the base, and including the stamens and pistil.

Sub-Tribe I. TUBIFLORÆ.

All the florets tubular, or only, occasionally, with a very indistinct ray.[1] Gen. 23—31. (See Tab. V. A.)

23. BÍDENS *Linn.* Bur-marigold.

Pappus of 2—5 persistent awns, which are rough with minute deflexed prickles. *Receptacle* chaffy. *Involucre* of many scales; the outer ones or bracteas often leafy. (Corollas *sometimes radiant.*) — Name: *bis, double,* and *dens,* a *tooth;* from the two awns or teeth which crown the fruit.

1. B. *cérnua* L. (*nodding Bur-marigold*); flowers drooping, bracteas lanceolate entire (longer than the involucre), leaves lanceolate serrated undivided, bristles of the fruit about 3 erect. *E. Bot.* t. 1114; *Ed. Cat.* p. 2.

Sides of rivulets, ditches and lakes, frequent. *Fl.* June—Aug. ⊙.

Fig. 4. The same floret, with the corolla laid open to show more distinctly the stamens and style.

Fig. 5. Upper part of the style, showing no articulation.

Fig. 6. 6. Fruits, with the withered and persistent base of the corollas.

All more or less *magnified.*

Tab. V. B. Fig. 1. Head of flowers of the *Common Daisy* (*Bellis perennis*), showing the tubular florets in the centre, and the ligulate ones forming a ray in the circumference, all within the involucre.

Fig. 2. Involucre, with the conical receptacle; all the florets being removed, except a single tubular one of the centre and one of the ray.

Fig. 3. Floret of the ray or circumference, having at its base the germen destitute of pappus, and above it the ligulate or strap-shaped corolla, exhibiting in its short cylindrical base only a style and stigmas, no stamens; it is, therefore, imperfect, but fertile, the pistil being fertilized by the anthers of the central florets.

Fig. 4. Floret of the centre or disk, having, at the base, the germen, destitute of pappus; above that, the tubular corolla, including the stamens and style: it is, therefore, perfect.

All more or less *magnified.*

Tab. VI. Fig. 1. Outer or under side of a head of flowers within the involucre, of *Doronicum* (Leopard's bane).

Fig. 2. Superior side of the same head of flowers, the centre or disk being formed of tubular florets, the circumference or ray of ligulate florets. The spreading of the ray conceals the involucre.

Fig. 3. Involucre and receptacle, from which all the florets are removed.

Fig. 4. Floret from the circumference or ray: *a,* ligulate corolla; *b,* its germen, destitute of pappus or seed-down; *c,* style and stigmas. There are no stamens, consequently the florets of the ray are imperfect, but fertile.

Fig. 5. Floret from the centre of the head. *a,* tubular corolla; *b,* the anthers; *c,* the style with its branches and stigmas; *d,* the germen, or young fruit supporting at the top, *e,* a pappus.

All more or less *magnified.*

The name *Corymbiferæ* was given to this tribe or division of *Compositæ,* because, in many cases, as in the *Hemp-agrimony, Tansy,* &c. the heads of flowers are arranged in corymbs; but this is by no means universally the case.

[1] In *Bidens, Tanacetum,* and *Artemisia,* there is occasionally a ray. *Aster,* and some species of *Senecio,* in the second sub-tribe, on the other hand, are without a ray.

— 1—2 ft. and more high, branched and slightly hispid. *Leaves* glabrous, deeply serrated. *Flowers* large, greenish-yellow.

2. B. *tripartíta* L. (*trifid Bur-marigold*); leaves tripartite, leaflets lanceolate deeply serrated, bristles of the fruit 2—3. *E. Bot.* t. 1113; *Ed. Cat.* p. 2.

Marshy places, sides of ponds and lakes. *Fl.* July. ☉. — Readily distinguished by its divided *leaves*. The *flowers*, which are slightly drooping, are smaller than those of *B. cernua*.

24. Eupatórium *Linn.* Hemp-agrimony.

Pappus pilose and rough or feathery. *Receptacle* naked. *Involucre* imbricated, oblong. *Florets* few. *Styles* much exserted. — Named from *Eupator*, the surname of *Mithridates*, king of Pontus, who brought the plant into use.

1. E. *cannábinum* L. (*common Hemp-agrimony*); leaves opposite subpetiolate 3—5-partite, their segments lanceolate deeply serrated. *E. Bot.* t. 428; *Ed. Cat.* p. 5.

Banks of rivers and watery places. *Fl.* July, Aug. ♃. — *Stems* 3—4 feet high, branched. *Leaves* downy, the middle lobe the longest. *Flowers* very numerous, pale reddish-purple, thickly crowded in terminal *corymbs*. *Style* longer than the *cor.*, deeply cleft.—Plant slightly aromatic.

25. Linosýris *Cass.* Goldylocks.

Pappus pilose, rough, *Receptacle* alveolate. *Involucre* in one row of leafy scales. *Cor.* deeply 5-cleft. *Style* scarcely longer than the corolla. — Named from *Linum*, *flax*, and *Osyris*, an appellation given by Pliny to a plant with supple branches and leaves like flax.

1. L. *vulgaris* L. (*Flax-leaved Goldylocks*); herbaceous, leaves linear glabrous, scales of the involucre loosely spreading. *E. Bot.* t. 2505; *Ed. Cat.* p. 8.

Rocky clefts of Berryhead, Devon. Whorle-hill, Weston-supra-mare, Somerset. Ormeshead, abundant: *Mr. W. Wilson*. Between Brighton and Shoreham. *Fl.* Aug. Sept. ♃.

26. Diótis *Desf.* Cotton-weed.
(Tab. V. A.)

Pappus 0. *Cor.* with two ears at the base, which border the germen and remain upon the fruit. *Receptacle* chaffy, its scales fringed. *Involucre* imbricated, hemisphærical.—Named from δις, *two*, and ους, ωτος, an *ear*, from the ear-like appendages to the fruit.

1. D. *marítima* Cass. (*Sea-side Cotton-weed*). *Hook. in Fl. Lond. N. S.* t. 137; *Ed. Cat.* p. 5. Santolina *L.*: *E. Bot.* t. 141.

Sandy sea-shores, principally on the east and south of England. *Fl.* Aug. Sept. ♃. — *Roots* running deep into the sand. *Leaves* numerous, oblong, covered with a dense white tomentum, as are the

scales of the *involucre*, which in a great measure conceal the small yellow *corollas*.

27. TANACÉTUM *Linn.* Tansy.

Fruit crowned with a membranous margin or *pappus*. *Receptacle* naked. *Involucre* hemisphærical, imbricated. *Florets* of the ray trifid, sometimes wanting. — Name altered from *Athanasia; α, not,* and θανατος, *death;* or that which does not quickly fade.

1. T. *vulgare* L. (*common Tansy*); leaves bipinnatifid inciso-serrate. *E. Bot.* t. 1229; *Ed. Cat.* p. 14.

Borders of fields and road-sides. *Fl.* Aug. ♃. — 1 — 3 feet high. *Flowers* in a terminal *corymb*. — Whole plant bitter and aromatic, much used in medicine, and also in domestic economy.

28. ARTEMÍSIA *Linn.* Wormwood, Southernwood, Mugwort.

Pappus 0. *Involucre* few-flowered, ovate or rounded, imbricated. *Florets* of the ray, if any, slender, awl-shaped. —Named from *Artemis*, the Diana of the Greeks.

1. A. *campéstris* L. (*Field Southernwood*); leaves bipinnatifid glabrous above with linear segments, stems twiggy procumbent before flowering. *E. Bot.* t. 338; *Ed. Cat.* p. 2.

Rare. Dry sandy heaths; Norfolk and Suffolk, principally in the vicinity of Thetford and Bury. *Fl.* Aug. ♃.

2. A. *marítima* L. (*Sea Wormwood*); erect, leaves downy bipinnatifid with linear segments, flowers racemed oblong, receptacle naked. — *α.* racemes drooping. *E. Bot.* t. 1706; *Ed. Cat.* p. 2. — *β.* racemes erect. A. Gallica *Willd.: Ed. Cat.* p. 2; *E. Bot.* t. 1201. (*A. marit.*)

Sea-shores and in salt-marshes, where the two *varieties* may be seen growing together, and sometimes from the same root. *Fl.* Sept. ♃.

3. A. *Absínthium* L. (*common Wormwood*); leaves bipinnatifid clothed with short silky down, segments lanceolate, flowers hemisphærical drooping, receptacle hairy. *E. Bot.* t. 1230; *Ed. Cat.* p. 2.

Waste places and about villages, in dry soils. *Fl.* Aug. ♃.—1—1½ foot high, erect. *Panicles of flowers* erect, leafy. *Floral leaves* undivided. *Flowers* dingy yellow, rather large, hemisphærical; *florets* of the *ray* very short. — Aromatic and bitter, much used in medicine.

4. A. *vulgáris* L. (*Mugwort*); leaves pinnatifid their segments white and downy beneath, flowers somewhat racemed ovate, receptacle naked. *E. Bot.* t. 978; *Ed. Cat.* p. 2.

Hedges and waste places, common. *Fl.* Aug. ♃.—*Stems* 3—4 feet high, furrowed.

5. A. * *cæruléscens* L. (*bluish* or *Lavander-leaved Mugwort*); "leaves hoary most of them lanceolate undivided tapering at the base, lower ones variously divided, flowers erect cylindrical, receptacle naked." *E. Bot.* t. 2426; *Ed. Cat.* p. 2.

Sea-coast near Boston, Lincolnshire, and in the Isle of Wight: but it cannot be found there now. *Fl.* Aug. Sept. ♃.

29. GNAPHÁLIUM *Linn.* Cudweed.

Pappus pilose, the hairs often thickened upwards. *Receptacle* naked. *Involucre* scariose, imbricated, often coloured. *Florets* of the circumference filiform, not constituting a ray. Sometimes *diœcious.* — Name: *γναφαλον, soft down,* or *wool,* with which the leaves are clothed.

* *Flowers diœcious.* (Antennaria *Gært.*)

1. G. *dioïcum* L. (*Mountain Cudweed*); shoots procumbent, stems simple, corymbs crowded, root-leaves spathulate woolly chiefly beneath, flowers diœcious, inner scales of the involucre elongated obtuse coloured. *E. Bot.* t. 267; *Ed. Cat.* p. 6.—β. hyperboreum, leaves woolly on both sides. *Ed. Cat.* p. 6. Antennaria hyperb. *D. Don in E. Bot. Suppl.* t. 2640.

Mountain-heaths, abundant. — β. Isle of Skye. *Fl.* June, July. ♃. — *Flowering-stems* 3 — 4 inches high. *Leaves* greenish and naked above when old, beneath white. Inner *scales* of the *involucre* often rose-coloured, especially in the sterile flower.

2. G. **margaritáceum* L. (*American Cudweed, Pearly Everlasting*); herbaceous, stem branched above, leaves linear-lanceolate acute alternate cottony especially beneath, flowers corymbose level-topped. *E. Bot.* t. 1018; *Ed. Cat.* p. 6. Antennaria *Gært.*

Moist meadows near Bocking, Essex. Banks of the Rymney, South Wales; and near Dalgelly, Merionethshire. Wire Forest, Worcestershire; and near Lichfield. Jersey and Guernsey. *Babington* and *Christy. Fl.* Aug. ♃.

** *Flowers perfect.*

3. G. *lúteo-álbum* L. (*Jersey Cudweed*); herbaceous, leaves semiamplexicaul linear-oblong waved woolly on both sides, lower ones obtuse, flowers densely tufted. *E. Bot.* t. 1002; *Ed. Cat.* p. 6.

Jersey. Between Hanxtown and Little Shelford, Cambridgeshire. Fields at Larlingford, Norfolk. *Fl.* July, Aug. ☉. — *Corollas* yellow and distinct; while those of the following sp. are inconspicuous.

4. G. *sylváticum* L. (*Highland Cudweed*); stem simple nearly erect downy, flowers axillary forming an interrupted leafy spike, leaves linear-lanceolate downy. *Ed. Cat.* p. 6. — α. leaves woolly on both sides. G. sylvaticum, *E. Bot.* t. 913.—β. leaves nearly glabrous above, spike longer more interrupted. *Ed. Cat.* p. 6. G. rectum *Huds.: E. Bot.* t. 124.

Groves, thickets, and pastures; frequent in Scotland. *Fl.* Aug. ♃. — *Scales* of the involucre oblong, shining, with a broad, brown border.

5. G. *supínum* L. (*dwarf Cudweed*); stem decumbent branching only from the base, flowering-stems erect, flowers solitary

or racemed, leaves linear downy on both sides. *E. Bot.* t. 1193; *Ed. Cat.* p. 6. Omatotheca *DG.* G. alpinum *Lightf. Scot.* t. 20. f. 2.

Summits of all the Highland mountains, abundant. *Fl.* July, Aug. ♃. — Whole plant rarely exceeding 2—3 inches in height, clothed with a white cottony substance. Very nearly allied to the preceding, yet a truly distinct species.

6. G. *uliginósum* L. (*Marsh Cudweed*); stem very much branched diffuse woolly, leaves linear-lanceolate downy, flowers in terminal crowded clusters which are shorter than the leaves. *E. Bot.* t. 1194; *Ed. Cat.* p. 6.

Sandy and wet places; especially where water occasionally stands. *Fl.* Aug. Sept. ☉. — A span high, much branched. *Flowers* 2 — 3 together in the closely placed upper *leaves*, small, sessile, forming oblong clusters at the extremity of the branches. *Scales* of the *involucre* yellowish-brown, shining, glabrous.

30. Filágo *Linn.* Filago.

Pappus pilose, caducous. *Receptacle* chaffy in the circumference. *Involucre* imbricated, conical, of few acuminated scales. *Florets* 4-toothed, those of the circumference filiform, not forming a ray. — Name; *filum, thread*, the whole plant being covered with slender thread-like hairs.

1. F. *Gállica* L. (*narrow-leaved Filago*); stem erect dichotomous, leaves linear-acuminate downy, flowers crowded axillary and terminal, clusters much shorter than the leaves. *Ed. Cat.* p. 5. Gnaphalium *Huds.: E. Bot.* t. 2369.

Gravelly and sandy fields; about Castle Heveningham, Essex. In Derbyshire. Kent. Near Forfar; and near Newburgh, Fifeshire. *Fl.* July, Aug. ☉. — *Stem* about a span high, slender, leafy. *Flowers* small, oblong, in rather distant, leafy clusters. — The greater length of the leaves seems chiefly to distinguish this from the following.

2. F. *mínima* (*least Filago*); stem erect branched, branches spreading, leaves lanceolate acute cottony, flowers conical clustered lateral and terminal, clusters longer than the leaves. *Ed. Cat.* p. 5. Gnaphalium *E. Bot.* t. 1157. Filago montana *Sibth.* (*not L.*) F. arvensis *Ehrh. Herb.* 100 (*not of L.*) *Sm.*

Dry and gravelly places, frequent. *Fl.* July, Aug. ☉.—*Stems* 4—6 inches high, slender, branched above in a dichotomous manner. *Involucres* downy, broad at the base. *Florets* yellowish. — Said by Smith to be smaller and less woolly than the true *F. mont.* of the Linn. Herb.

3. F. *Germánica* L. (*common Filago*); stem erect proliferous at the summit, leaves lanceolate downy acute, flowers globoso-capitate in the axils of the branches and terminal. *Ed. Cat.* p. 5. Gnaphalium *Huds.: E. Bot.* t. 1946.

Sandy and gravelly places, and dry pastures. *Fl.* June, July. ☉.—*Stems* 6—8 inches high, erect, very leafy, terminated by a globular *head* of small, ovate *flowers*, from beneath which spring 2—3 or more hori-

zontal branches, in a proliferous manner, each terminated by a head of flowers. This curious mode of growth occasioned the term of *Herba impia* to be applied by the old botanists to this plant, as if the offspring were undutifully exalting itself above the parent. *Scales* of the *involucre* yellowish, shining, very acute, submucronate.

31. Petasítes *Desf.* Butter-bur.

Nearly diœcious. *Pappus* pilose. *Involucre* imbricated in two rows of lanceolate scales. (Scapes *many-flowered, appearing before the leaves.*) — Name: πεταση, a *covering to the head*, or an *umbrella*, from the great size of the foliage.

1. P. *vulgáris* Desf. (*common Butter-bur*); thyrsus dense oblong, leaves cordate unequally toothed downy beneath, the lobes approximate. *Ed. Cat.* p. 9. Tussilago Petasites *Hoppe.* — A. flowers sterile, bearing anthers, rarely seed. T. Petasites *L.: E. Bot.* t. 431. — B. flowers fertile, bearing seed, rarely stamens. T. hybrida *L.: E. Bot.* t. 430.

Wet meadows, to which it is very injurious, and river-sides. *Fl.* April, May, before the leaves. ♃.— *Root* extensively creeping, and thus multiplying the plant. *Leaves* very large. *Flowers* of a pale flesh colour, smaller, more lax, and in a longer thyrsus on the fertile plant. The early blossoming of this rank weed induces the Swedish farmers to plant it near their bee-hives. Thus we see in our gardens the bees assembled on its affinities, *P. alba* and *fragrans*, at a season when scarcely any other flowers are expanded.

Sub-Tribe II. Radiatæ.

Florets of the centre tubular, perfect (having anthers and pistils); those of the circumference ligulate, forming a distinct ray, having pistil only (no stamens). Gen. 32—46. (See Tab. V. B. and Tab. VI.)

* *Pappus pilose.*

32. Tussilágo *Linn.* Colt's-foot.

Pappus pilose. *Florets* of the ray long, narrow, numerous; of the disk few (both yellow). *Receptacle* naked. *Involucre* formed of a single row of equal, linear scales. (Scapes *single-flowered, appearing before the leaves.*) — Name altered from *tussis*, a *cough*, in the cure of which the plant has been employed.

1. T. *Fárfara* L. (*Colt's-foot*); scape single-flowered imbricated with scales, leaves cordate angular toothed downy beneath. *E. Bot.* t. 429.; *Ed. Cat.* p. 14.

Moist and clayey soils, too abundant. *Fl.* March, April, before the leaves. ♃.— *Flowers* yellow; *florets* of the *disk* few. The down of the leaves makes good tinder. The *leaves* themselves have been used medicinally, as an infusion, or smoked like tobacco, for the relief of asthma. Mr. W. Wilson observes that the central tubular florets are barren, those of the circumference generally fertile.

33. Erígeron *Linn.* Flea-bane.

Pappus pilose, rough. *Florets* of the ray numerous, in many rows, very narrow (mostly of a different colour from the disk). *Receptacle* naked. *Involucre* imbricated with linear scales.—Named from ηρι, *early*, and γερων, an *old man*; from the early ripening of the grey seed-down.

1. E.* *Canadénsis* L. (*Canada Flea-bane*); hairy, leaves lanceolate nearly entire, flowers numerous panicled. *E. Bot.* t. 2019; *Ed. Cat.* p. 5.

Waste and cultivated ground, in England, occasionally. *Fl.* Aug. Sept. ☉. — *Flowers* yellowish-white.

2. E. *ácris* L. (*blue Flea-bane*); peduncles alternate (scarcely "racemose") single-flowered, pappus as long as the florets of the ray, leaves lanceolate obtuse. *E. Bot.* t. 158.; *Ed. Cat.* p. 5.

Dry gravelly or chalky pastures, walls, &c. *Fl.* Aug. ♃ (☉?).—1—1½ foot high; whole plant scabrous, hispid, erect, panicled above and leafy; *flowers* terminal, pedunculated from the axils of the leaves. *Leaves* below tapering into a footstalk. *Florets* of the *disk* yellow; of the *ray* ligulate, purplish. *Pappus* very long and tawny.

3. E. *alpínus* L. (*alpine Flea-bane*); stems with usually only one flower, pappus much shorter than the florets of the ray, leaves lanceolate. — α. stem 1—3-flowered, involucre hairy. E. alpinus *L.: E. Bot.* t. 464; *Ed. Cat.* p. 5.—β. stem single-flowered, calyx woolly. *Ed. Cat.* p. 5. E. uniflorus *L.: E. Bot.* t. 2416.

Highland mountains; not common, except on the Breadalbane range.—α. and β. are both mentioned as growing on Ben Lawers, by *Sir J. E. Smith*. *Fl.* July. ♃. — Hairy or hispid, like the last; but with *leaves* much longer in proportion. 3—5 inches high, simple, with rarely more than one *flower* at the summit.

34. A'ster *Linn.* Starwort.

Pappus pilose, in many rows. *Receptacle* naked. *Involucre* imbricated, a few scales on the peduncle. *Florets* of the disk yellow, of the ray usually purple, and in 1 or 2 rows. — Name: *aster*, a *star*, which the flowers resemble.

1. A. *Tripólium* L. (*Sea Starwort*, or *Michaelmas Daisy*); stem glabrous corymbose, leaves linear-lanceolate fleshy obscurely 3-nerved, scales of the involucre lanceolate membranous obtuse all imbricated. *E. Bot.* t. 87; *Ed. Cat.* p. 2. Tripolium vulgare *Nees*.

Salt-marshes, frequent. *Fl.* Aug. Sept. ♃.—1—3 feet high. The *florets* of the *ray* are sometimes wanting.

35. Solidágo *Linn.* Golden-rod.

Pappus pilose, rough, in 1 row. *Receptacle* naked. *Involucre* closely imbricated. *Florets* of the ray few, in 1 row, and, as

well as those of the disk, yellow. — Name: *solidare*, to *unite*; from the vulnerary properties that have been attributed to some species.

1. S. *Virgaúrea* L. (*common Golden-rod*); cauline leaves lanceolate the lower ones elliptical, racemes panicled erect crowded. *E. Bot.* t. 301; *Ed. Cat.* p. 13. — β. small, with broader radical leaves. *Ed. Cat.* p. 13. S. Cambrica *Huds.*

Woods and thickets.—β. in mountainous countries. *Fl.* July—Sept. ♃. — Lower *leaves* broad, stalked: very variable in its size, and in its more or less compact *inflorescence*. Used as a vulnerary and diuretic.

36. Senécio *Linn.* Groundsel.

* *Flowers without rays.*

Pappus pilose. *Receptacle* naked. *Involucre* cylindrical, its scales linear, equal, with several smaller ones at the base, their tips often brown. (*Flowers*, in the British species, yellow, their ray sometimes wanting.) — Named from *senex*, an *old man*. (See *Erigeron.*)

1. S. *vulgáris* L. (*common Groundsel*); leaves semiamplexicaul pinnatifid toothed, flowers in clustered corymbs destitute of a ray. *E. Bot.* t. 747; *Ed. Cat.* p. 13.

Waste ground, fields and hedges, abundant. *Fl.* all summer. ☉. — A span to a foot high. *Flowers* small, yellow. Birds are fond of the buds and young leaves.

** *Flowers rayed, with the rays rolled back.*

2. S. *viscósus* L. (*stinking Groundsel*); ray revolute, leaves pinnatifid and viscid, scales of the involucre lax hairy, stem branching diffuse. *E. Bot.* t. 32; *Ed. Cat.* p. 13.

Waste ground, especially on chalky or gravelly soil, in many places. *Fl.* July, Aug. ☉. — *Stems* 1—2 feet high, much branched and spreading; remarkable for its viscid hairs and fetid smell.

3. S. *sylváticus* L. (*Mountain Groundsel*); ray revolute sometimes wanting, leaves sessile pinnatifid lobed and toothed often eared at the base, outer scales of the involucre very short glabrous, stem erect straight, flowers corymbose. *E. Bot.* t. 748; *Ed. Cat.* p. 13.—β. leaves distinctly eared and amplexicaul at the base. *Ed. Cat.* p. 13. S. lividus *L.? : E. Bot.* t. 2515.

Dry upland soils, banks, and gravelly pastures. *Fl.* July. ☉.—1 ft. high. *Leaves* finely divided. Plant with a disagreeable smell, but not so powerful as *S. viscosus*. The *S. lividus* of Linn. is a Spanish species, and unknown to me; but whatever it is, I fear the plant of *E. Bot.* cannot be considered specifically distinct from the present. I form my opinion from Mr. Middleton's original specimens now before me. Mr. W. Wilson does not think it distinct; nor does Mr. Richmond (*Nat. Hist. Mag. for Mar.* 1830, p. 197), who observes that the green tips of the *cal. scales*, upon which much stress is laid, eventually become brown.

**** Flowers with patent rays. Leaves pinnatifid.*

4. S. *squálidus* L. (*inelegant Ragwort*); ray spreading its corollas elliptical entire, leaves glabrous pinnatifid with distant oblong and toothed segments. *E. Bot.* t. 600; *Ed. Cat.* p. 13.

On walls in and about Oxford. Walls and rubbish at Biddeford, Devon. *Fl.* June—Oct. ☉.—A most distinct species, but which I have hardly ventured to consider indigenous, till its recent discovery in Devonshire, by Mr. Forster.

5. S. *tenuifólius* Jacq. (*hoary Ragwort*); ray spreading its corollas oblong, leaves closely pinnatifid their margins somewhat revolute, pale and downy beneath, stem erect, loosely cottony, all the fruit hairy. *E. Bot.* t. 574. S. erucæfolius *L.: Ed. Cat.* p. 13.

Hedges and road-sides in England, especially in a chalky or gravelly soil. Woodhall, near Airdrie: *Dr. Graham.* Anton's-hill, near Coldstream and Swinton. *Fl.* July, Aug. ♃. — Allied to the following; but with more regular, less divided, and less spreading segments to the *leaves*.

6. S. *Jacobæa* L. (*common Ragwort*); ray spreading, leaves lyrate bipinnatifid, segments divaricated toothed glabrous, stem erect, fruit hairy, that of the ray glabrous. *E. Bot.* t. 1130; *Ed. Cat.* p. 13.

Way-sides and neglected pastures, too plentiful. *Fl.* July, Aug. ♃. — *Stems* 2—3 feet high, striated, branched. *Flowers* large, golden-yellow, in *corymbs*.— Dr. Graham finds a *var.* in Sutherland without the *ray*, as does *Mr. W. Wilson* on Brandon Mountain.

7. S. *aquáticus* Huds. (*Marsh Ragwort*); ray spreading, leaves lyrate serrated glabrous the lowermost obovate and undivided, involucre hemisphærical, fruit all glabrous. *E. Bot.* t. 1131; *Ed. Cat.* p. 13.

Wet places and by the sides of rivers and ditches. *Fl.* July, Aug. ♃.—*Flowers* larger than in the last species.

***** Flowers rayed. Leaves undivided.*

8. S. *paludósus* L. (*great Fen Ragwort*); ray spreading toothed, leaves semiamplexicaul lanceolate sharply serrated somewhat woolly beneath, stem perfectly straight hollow rather woolly, corymbs terminal spreading, bracteas subulate. *E. Bot.* t. 650; *Ed. Cat.* p. 13.

Rare; ditches and fens in the east of England; Suffolk, Lincolnshire and Cambridgeshire. *Fl.* June, July. ♃. — *Stem* 5—6 feet high. *Leaves* and *flowers* large, the latter of many linear toothed *rays*.

9. *S. Saracénicus* L. (*broad-leaved Groundsel*); ray spreading nearly entire, leaves lanceolate sessile minutely glanduloso-serrate glabrous, stem erect solid glabrous, corymbs terminal of rather few flowers, bracteas linear-setaceous. *E. Bot.* t. 2211; *Ed. Cat.* p. 13.

Moist meadows and pastures, in several parts of England and Scotland; but very local, and probably often escaped from gardens. Woods

at Bantry. *Fl.* July, Aug. ♃. — 3—5 feet high: habit of the last: *flowers* much smaller, with broader *florets* of the *circumference.*

37. CINERÁRIA *Linn.* Flea-wort.

Pappus pilose. *Receptacle* naked. *Involucre* cylindrical, of many equal, erect scales. (*Flowers* yellow.) — Name: *cineres, ashes;* from the ashen colour of the under-side of the leaves in some species.

1. C. *palústris* L. (*Marsh Flea-wort*); shaggy, stem much branched fistulose, leaves broadly lanceolate sinuato-dentate, flowers corymbose. *E. Bot.* t. 151; *Ed. Cat.* p. 4.

Margins of pools and ditches, chiefly in Norfolk and Cambridgeshire. *Fl.* June, July. ♃.

2. C. *campéstris* Willd. (*Field Flea-wort*); woolly, stem simple, root-leaves elliptical nearly entire those of the stem (small) lanceolate, flowers umbellate. *Hook. in Fl. Lond.* t. 75; *Ed. Cat.* p. 4. C. integrifolia *With.: E. Bot.* t. 152.

Chalky downs in the middle and S. of England.—β. maritime rocks, Hoyhead: *Mr. W. Wilson. Fl.* May, June. ♃ ? ♂ ?.

38. DORÓNICUM *Linn.* Leopard's-bane.
(Tab. VI.)

Pappus pilose, wanting to the florets of the ray. *Receptacle* naked, or nearly so. *Involucre* with the scales equal, in a double row. (*Flowers* yellow.) — Named from δωρον, a *gift*, and νικη, *victory*, because it is said to have been formerly used to destroy wild beasts, whence the English name of *Leopard's bane:* or, some say, from *Doronigi*, or *durungi*, the Arabic name of the *Leopard's-bane*, Latinised by earlier botanists into *doronicum*, and enumerated by Linnæus among barbarous names which ought to be rejected. He, however, retained it, because perhaps its sound, if not its sense, is Greek.

1. D. * *Pardaliánches* L. (*great Leopard's-bane*); leaves cordate toothed the lowermost on long naked petioles, the intermediate with the petioles dilated into two broad semiamplexicaul ears at the base, the uppermost sessile and amplexicaul. *Jacq. Austr.* t. 350; *Hook. in Fl. Lond.* t. 88; *Borrer in E. Bot. Suppl.* t. 2654; *Ed. Cat.* p. 5.

Catton, by Norwich. Mountains of Northumberland. Den of Dupplin and Dalkeith park, &c., Scotland. *Fl.* June, July. ♃.

2. D. *plantagíneum* L.? (*Plantain-leaved Leopard's-bane*); leaves toothed, radical ones on naked stalks ovate or slightly cordate produced at the base, cauline ones sessile except the lowest which has a winged stalk with amplexicaul auricles, intermediate ones cordato-oblong, upper ovato-acuminate. *Borr. in E. Bot. Suppl. under* t. 2654; *Ed. Cat.* p. 5. D. Pardalianches *E. Bot.* t. 630.

Salinghall, and Widdington, Essex. Saline, Fifeshire; and Cleish: *Dr. Dewar. Fl.* June, July. ♃.

39. Inula *Linn.* Elecampane.

Fruit beaked. *Pappus* pilose, in 1 row. *Receptacle* naked. *Involucre* imbricated. (*Flowers* yellow. *Anthers* with bristles at their base.)—Name said to be the same as *Helenium*, having sprung from the tears of Helen.

1. I. *Helénium* L. (*Elecampane*); leaves amplexicaul somewhat toothed ovate wrinkled, downy beneath, scales of the involucre ovate downy. *E. Bot.* t. 1546; *Ed. Cat.* p. 7.

Moist pastures, rare; but found in several places of England, Scotland and Ireland. *Fl.* July, Aug. ♃.—3—5 feet high, branched. *Flower* large, terminal, solitary, with many narrow, tricuspidate, yellow *rays*.

2. I. *Conýza* DC. (*Ploughman's Spikenard*); leaves pubescent ovato-lanceolate serrated the upper ones entire, stem herbaceous corymbose, scales of the involucre recurved leafy. *Ed. Cat.* p. 7. Conyza squarrosa *L.*: *E. Bot.* t. 1195.

Frequent on chalky or clayey soil. Rare, if really wild, in Scotland. *Fl.* Sept. Oct. ♂.—*Stem* 2—3 feet high. *Panicle* leafy, with the leaves entire. *Lower leaves* stalked. *Flowers* yellow. *Florets* of the circumference very small, ligulate.

3. I. *crithmoides* L. (*golden Samphire*); leaves linear fleshy generally 3-toothed at the extremity. *E. Bot.* t. 68; *Ed. Cat.* p. 7. Limbarda tricuspis *Cass.*

South and west shores of England and Wales, in salt-marshes, and on sea-side rocks; and as far north as Galloway. Howth, Ireland. *Fl.* Aug. ♃.—One foot high, a little branched at the summit, each branch bearing a solitary *flower*.

40. Pulicária *Gærtn.* Flea-bane.

Fruit not beaked. *Pappus* double: *outer one* short, cup-shaped, membranous, toothed; *inner* pilose, rough. *Receptacle* naked. *Involucre* hemisphærical, closely imbricated with numerous scales. (*Flowers* yellow. *Anthers* with bristles at their base.)—Name: *pulex*, a *flea*, which is supposed to be driven away by its powerful smell.

1. P. *dysentérica* Cass. (*common Flea-bane*); leaves oblong cordate or sagittate and amplexicaul at the base wrinkled downy, stem woolly panicled, scales of the involucre setaceous. *Ed. Cat.* p. 10. Inula *L.*: *E. Bot.* t. 1115.

Moist and watery places, frequent in England and in the county of Dublin: rare in Scotland; Mull of Galloway, and Bennanhead, Arran. *Fl.* Aug. ♃.—About 1 foot high. *Flowers* with moderately long *rays*.

2. P. *vulgáris* Gærtn. (*small Flea-bane*); leaves lanceolate wavy hairy narrow at the base and semiamplexicaul, stem much branched hairy, ray scarcely longer than the disk. *Cass.*: *Ed. Cat.* p. 10. Inula Pulicaria *L.*: *E. Bot.* t. 1196.

Moist sandy places, especially where water has stood, in England; not found in Scotland or Ireland. *Fl.* Sept. ☉.

41. Bélłis *Linn.* Daisy.

Pappus none. *Receptacle* naked, conical. *Involucre* hemisphærical, its scales obtuse, equal, in a single row. (*Scape* single-flowered.) — Named from *bellus, pretty.* And who is there, whether in youth or in age, that is not sensible of the charms of this "modest crimson-tipped flower?" It is therefore, in France, called *Marguerite,* a term expressive of beauty, from *margarita,* a *pearl.*

1. B. *perénnis* L. (*common Daisy*); scape single-flowered, leaves spathulate obovate crenate. *E. Bot.* t. 424; *Ed. Cat.* p. 2.

Pastures, frequent. *Fl.* from early spring till the end of autumn. ♃.

42. Chrysánthemum *Linn.* Ox-eye.

Pappus 0. *Receptacle* naked. *Involucre* hemisphærical or nearly flat; the scales imbricated, membranaceous at their margins. — Name; κρυσος, *gold,* and ανθεμον, a *flower,* from the colour of the blossoms in some of the species.

1. C. *Leucánthemum* L. (*great white Ox-eye*); leaves oblong obtuse cut and pinnatifid at the base, radical ones obovate petiolate, stem erect branched (ray white). *E. Bot.* t. 601; *Ed. Cat.* p. 4.

Dry pastures, abundant. *Fl.* June, July. ♃. — *Stems* 1—2 feet high, furrowed. *Flowers* large, their *disk* yellow, the *ray* white.

2. C. *ségetum* L. (*Corn Marigold, yellow Ox-eye*); leaves amplexicaul glaucous inciso-serrate above toothed at the base, (ray yellow). *E. Bot.* t. 540; *Ed. Cat.* p. 4.

Corn-fields, frequent; rare about Edinburgh. *Fl.* June—Aug. ☉. — One foot or more high. *Flowers* large, deep yellow.

43. Pýrethrum *Hall.* Feverfew.

Fruit crowned with a membranaceous border. *Receptacle* naked. *Involucre* hemisphærical or nearly flat, the scales imbricated, membranaceous at their margins. — Named from its resemblance to the πυρεθρον, of Dioscorides, so called from πυρ, *fire,* on account of its acrid roots.

1. P. *Parthénium* Sm. (*common Feverfew*); leaves petiolate flat bipinnate the segments ovate cut, peduncles branched corymbose, stem erect, involucre hemisphærical downy. *E. Bot.* t. 1231; *Ed. Cat.* p. 10. Matricaria *L.*

Waste places and in hedges. *Fl.* July. ♃. — 1—2 ft. high, branched. *Disk* yellow; *ray* very short, white. *Plant* bitter and tonic.

2. P. *inodórum* Sm. (*Corn Feverfew* or *scentless Mayweed*); leaves sessile bipinnatifid the segments capillary, stem branched spreading, border of the fruit entire. *E. Bot.* t. 676; *Ed. Cat.* p. 10. Chrysanthemum *L.* — β. *maritimum*; leaves fleshy. *Ed. Cat.* p. 10. Matricaria maritima *L.* Pyrethrum, *E. Bot.* t. 971.

Fields and way-sides, common. — β. sea-coast in many places, especially in Scotland. *Fl.* Aug.—Oct. ☉. — *Stem* about 1 foot high. *Flowers* large, upon long, naked peduncles. *Disk* very convex; *ray* large. Plant slightly aromatic.

44. Matricária *Linn.* Wild Chamomile.

Pappus 0. *Receptacle* naked. *Involucre* hemisphærical or nearly flat, the scales imbricated, obtuse, not membranaceous at their margins. — Named from its reputed medicinal virtues.

1. M. *Chamomílla* L. (*wild Chamomile*); leaves glabrous bipinnatifid the segments capillary, involucre nearly plane its scales obtuse. *E. Bot.* t. 1232; *Ed. Cat.* p. 8.

Corn-fields and waste ground, in various places. *Fl.* Aug. ☉. — *Stem* about 1 foot high, erect and branched. *Flowers* with a conical *disk*; the *ray* very obtuse, truncate and toothed. This has a bitter taste, and a faint but aromatic smell, not unlike that of the common or true *Chamomile* (*Anthemis nobilis*).

45. Anthemis *Linn.* Chamomile.

Pappus a membranaceous border, or 0. *Receptacle* convex, chaffy. *Involucre* hemisphærical or nearly plane, the scales imbricated, membranaceous at their margins. — Named ανθεμον, a *flower*, from the profusion of its blossoms.

1. A. *marítima* L. (*Sea Chamomile*); "leaves bipinnatifid acute fleshy dotted somewhat hairy, stem prostrate, scales of the receptacle prominent sharp-pointed." *E. Bot.* t. 2370; *Ed. Cat.* p. 1.

Sea-coast at Sunderland. Bear-Haven, in S. W. of Ireland. *Fl.* July. ☉.

2. A. *nóbilis* L. (*common Chamomile*); leaves bipinnate segments linear-subulate a little downy, scales of the receptacle membranaceous scarcely longer than the disk. *E. Bot.* t. 980; *Ed. Cat.* p. 1.

Dry gravelly pastures and waste places, in several parts of England. Isles of Cumbrae and Bute, Scotland. Kerry, Ireland. *Fl.* Aug. ♃. — *Stem* about a foot long, procumbent and much branched, each branch terminated by a single *flower*, whose *disk* is yellow, at length conical, and *ray* white. The whole plant is intensely bitter, highly aromatic and much used medicinally. Its principal virtues are supposed to reside in the *involucre*, which contains an essential oil. — *Chamomile* is derived from χαμαι, *dwarf*, and μηλον, an *apple*, because the plant smells like *apples*, or rather like *quinces*.

3. A. *arvénsis* L. (*Corn Chamomile*); leaves bipinnatifid segments linear-lanceolate pubescent, receptacle conical its scales lanceolate, fruit crowned with an entire pappus. *E. Bot.* t. 602; *Ed. Cat.* p. 1.

Corn-fields and way-sides, in several places; but very local. About Dunfermline: *Dr. Dewar.* Near Edinb. and Linlithgow. Gresford: *J. E. Bowman.* *Fl.* July. ♂. — *Stem* upright, much branched, and, as

well as the *leaves*, hoary with down; each branch terminated with a large *flower*, whose *disk* is yellow, the *ray* broad and white.

4. A. *Cótula* L. (*stinking Chamomile*); leaves bipinnatifid glabrous their segments subulate, receptacle conical its scales setaceous, pappus none. *E. Bot.* t. 1772; *Ed Cat.* p. 1. Maruta fœtida *DC.*

Waste places, corn-fields, and by road-sides. *Fl.* July, Aug. ☉. — *Stem* a foot or more high, glabrous. *Flowers* solitary, terminal, their *disk* convex, pale yellow; *ray* rather large, white, its florets *neuter*. The whole plant has a fetid smell, and is said to blister the hands of those who gather it. When examined with a microscope, it is found to be sprinkled all over with little glands, in which the acrid matter is probably lodged.

5. A. *tinctória* L. (*Ox-eye Chamomile*); leaves bipinnatifid serrated downy beneath, stem erect branched subcorymbose. *E. Bot.* t. 1472; *Ed. Cat.* p. 1.

Banks of the Tees, Durham, Essex; and near Forfar, Scotland. *Fl.* July, Aug. ♃. — *Stem* a foot or more high, cottony, as are the *scales* of the *involucre*. *Flowers* solitary, large, *entirely* yellow.

46. Achilléa *Linn.* Yarrow.

Pappus 0. *Receptacle* flat, chaffy. *Involucre* ovate, imbricated. *Florets* of the *ray* 5—10, roundish or obcordate. — So named because its healing virtues were said to be first discovered by *Achilles*.

1. A. *Ptármica* L. (*Sneeze-wort Yarrow*); leaves linear-lanceolate acuminate sharply serrated. *E. Bot.* t. 757; *Ed. Cat.* p. 1. — β. leaves deeply serrated laciniated at the base, flowers smaller buff-coloured. A. serrata *Retz?*: *E. Bot.* t. 2531; *Ed. Cat.* p. 1.

Moist meadows and pastures; especially in mountainous districts. — β. Near Matlock. *Fl.* July, Aug. ♃. — *Stem* 1—3 feet high, erect, terminating in a rather large *corymb*, the *disk* as well as *ray* of whose *flowers* is white. — When dried and pulverised, the plant has been employed to excite sneezing.

2. A. *Millefólium* L. (*common Yarrow* or *Milfoil*); leaves slightly hairy bipinnate, segments linear toothed acute, stems furrowed. *E. Bot.* t. 758; *Ed. Cat.* p. 1.

Pastures and way-sides, frequent. *Fl.* all summer. ♃. — *Flowers* small, white, or sometimes rose-coloured. The quality of this plant is highly astringent, and the Highlanders are said to make an ointment of it, which dries and heals wounds.

3. A. **tomentósa* L. (*woolly yellow Milfoil* or *Yarrow*); leaves woolly bipinnatifid, segments crowded linear acute, corymbs repeatedly compound. *E. Bot.* t. 2532; *Ed. Cat.* p. 1.

Dry hilly pastures, in Scotland. Spittle-hill, north-west of Balvie, Dumbartonshire; and near Paisley. Ireland (*E. Bot.*). *Fl.* Aug. ♃.

— A span or rather more in height. Readily recognised by its small size, downy *leaves*, and much branched *corymbs* of yellow *flowers*.

Anomalous Genus.

47. XÁNTHIUM [1] *Linn.* Bur-weed.
(Tab. VII.)

Monœcious. — *Barren fl. Involucre* of few scales, with many small, capitate *flowers*, upon a common receptacle. *Cal.* 0. *Cor.* obovate, sessile. *Anthers* terminating a tube which is inserted at the base of the *cor.* *Germen* abortive. — *Fertile fl. Involucre* single, prickly, with 2 beaks, entirely enclosing 2 flowers; the 2 *stigmas* only protruded from small apertures within the beaks. *Cal.* 0. *Cor.* 0. *Fruit* 1-seeded, included in the enlarged and hardened *involucre*. *Juss.* — Named from ξανθος, *yellow* or *fair*; because an infusion of this plant was supposed to improve the colour of the hair.

1. X. **strumárium* L. (*broad-leaved Bur-weed*); stem unarmed, leaves cordate angulato-dentate with 3 principal nerves at the base, beaks of the fruit straight the prickles hooked. *E. Bot.* t. 2544; *Ed. Cat.* p. 15.

Rare, in waste ground in the S. of England, and Kerry, Ireland. *Fl.* Aug. Sept. ☉. — A rank, weed-like plant, remarkable for the curious structure of its *flowers*, and the prickly *involucres* which surround the *fertile* ones, enlarging and becoming part of the *fruit*.

Ord. XLVII. CAMPANULACEÆ.

Calyx-tube adnate with the *ovary*, mostly 5-lobed, lobes persistent. *Corolla* regular or irregular, mostly 5-lobed, marcescent. *Stamens* equal in number with the segments of the *corolla*, free or more or less combined. *Anthers* opening longitudinally with 2 cells. *Ovary* with two or more polyspermous cells. *Style* 1. *Stigma* simple or lobed. *Fruit* dry, opening between the dissepiments. *Seeds* fixed to a central receptacle.

[1] Tab. VII. represents, at fig. 1. a flowering specimen of *Xanthium strumarium*; the upper clusters or heads consist of barren, the lower of fertile, flowers.

Fig. 2. Scale of the involucre with a barren flower, exhibiting the corolla and the staminal tube with five anthers.

Fig. 3. Fertile flower; consisting of a prickly monophyllous involucre with 2 beaks, and the branches of the styles protruded beyond the beaks.

Fig. 4. The same cut open to show the two pistils or flowers without calyx or corolla.

Fig. 5. Fruit, enveloped by the persistent involucre (natural size).

Fig. 6. The same (magnified).

Fig. 7. Single fruit.

Fig. 8. Seed.

Fig. 9. Embryo.

Fig. 10. The same, one cotyledon being removed.

Fig. 11. The same cut vertically through the two cotyledons.

Albumen fleshy. — Herbaceous *or* suffruticose. Leaves *mostly alternate, without stipules. Flowers generally blue or white.* — Lactescent and bitter. *Lobelia Tupa* of Chili is highly poisonous.

1. CAMPÁNULA *Linn.* Bell-flower.

Cor. campanulate or subrotate, with 5 broad and shallow segments. *Filaments* dilated at the base. *Stigma* 2—5-fid. *Caps.* 2—5-celled, bursting laterally, rarely at the extremity. — Named, from the usual form of the corolla, from *campana*, a *bell.*

* *Corolla campanulate.*

1. C. *rotundifólia* L. (*round-leaved Bell-flower* or *Hairbell*); glabrous, root-leaves subrotundo-cordate crenate (very soon withering) those of the stem linear entire. *E. Bot.* t. 866; *Ed. Cat.* p. 3.

Dry and hilly pastures, borders of fields, walls, &c., abundant, sometimes varying with white flowers. *Fl.* July—Sept. ♃. — *Panicle* few-flowered, lax. *Flowers* drooping. Whole plant slender and graceful.

> " E'en the slight *Hairbell* raised its head,
> Elastic from her airy tread."

2. C. *pátula* L. (*spreading Bell-flower*); stem angular scabrous, leaves roughish dentato-crenate those of the root obovato-lanceolate subpetiolate those of the stem linear-lanceolate, panicles spreading, calycine segments toothed, corolla spreading. *E. Bot.* t. 42; *Ed. Cat.* p. 3.

Pastures and hedges, chiefly confined to the middle and south-eastern counties of England, and even there by no means frequent. *Fl.* July, Aug. ☉. (♂. *Sm.*) — Somewhat allied to *C. rotundifolia;* but much taller; with more branched *panicles;* larger, more spreading, more purple *flowers*; rough *stems* and *leaves*, and toothed or serrated *calycine segments.*

3. C. **Rapúnculus* L. (*Rampion Bell-flower*); stem somewhat angular hairy below, leaves roughish those of the root obovato-oblong stalked crenate upper ones narrow-lanceolate, panicle erect racemose, calycine segments entire, limb of the corolla patent. *E. Bot.* t. 283; *Ed. Cat.* p. 3.

In Kent, Surrey, Norfolk, and Hampshire, in a gravelly soil: and in several of the midland counties, as far north as Yorkshire. *Fl.* July, Aug. ♃. — Taller (2—3 feet high), more erect and less panicled than the last. *Flowers* almost racemed, little spreading at the mouth, more truly campanulate. *Calycine segments* narrower and entire. The *roots* constitute *Ramps*, and used to be much cultivated for the table. Now, they are principally confined to the kitchen-gardens of the curious.

4. C. **persicifólia* L. (*Peach-leaved Bell-flower*); glabrous, stem rounded few-flowered, root-leaves obovate stalked crenate those of the stem linear-lanceolate subserrate sessile, calycine segments entire, corollas spreading. *E. Bot. Suppl.* t. 2773; *Ed. Cat.* p. 3.

Woods near Cullen, Scotland. *Fl.* July. ♃. — *Corolla* large, spreading. In wild specimens, the *flowers* are often solitary upon the stem.

5. C. *latifólia* (*Giant Bell-flower*); stem quite simple rounded, leaves ovato-lanceolate acute scabrous crenato-serrate, peduncles erect single-flowered, calyx glabrous its segments entire, fruit drooping. *E. Bot.* t. 302; *Ed. Cat.* p. 3.

Moist shady woods. In Norfolk, Suffolk, Bedfordshire, and Derbyshire, but rare; less unfrequent in the north of England, and very common in woody glens in Scotland. New-Ross, Ireland. *Fl.* July, Aug. ♃. — 2—3 feet high. *Corolla* very large, blue, often white in the Scottish woods. This is the finest and most stately of our species.

6. C. *rapunculoídes* L. (*creeping Bell-flower*); stem slightly branched, leaves cordato-lanceolate scabrous crenate, flowers solitary unilateral drooping axillary forming a leafy raceme, segments of the calyx reflexed. *E. Bot.* t. 1369; *Ed. Cat.* p. 3.

Woods and fields, rare. Oxfordshire. (*Buddle's Herbarium.*) On the magnesian limestone between Went-Bridge and Darlington, Yorkshire. Blair in Athol, Scotland; and found plentifully in corn-fields 2 miles N. W. of Kirkcaldy, by the late *Alexander Chalmers, Esq.* *Fl.* July, Aug. ♃. — 2 feet high. *Leaves* gradually narrower in the upper part of the stem. *Flowers* large. *Calycine segments* entire, rough.

7. C. *Trachélium* L. (*Nettle-leaved Bell-flower*); hispid, stem angular, leaves petiolate cordate acuminate inciso-serrate, peduncles axillary few-flowered, calycine segments erect. *E. Bot.* t. 12; *Ed. Cat.* p. 3.

Woods in England, frequent. *Fl.* July, Aug. ♃. — *Leaves* much like those of the Nettle, whence its English name.

8. C. *glomeráta* L. (*clustered Bell-flower*); stem angular simple nearly smooth, leaves scabrous crenate oblongo-lanceolate, root-leaves petiolate those of the stem semiamplexicaul, flowers sessile mostly in a terminal cluster. *E. Bot.* t. 90; *Ed. Cat.* p. 3.

In dry, principally chalky and clayey, pastures, England. Hilly pastures in Scotland; but confined, I believe, to the east side, between the Firth of Forth and Montrose. *Fl.* July, Aug. ♃. — Varying much in height, from 3 or 4 inches to a foot. *Flowers* rather large, erect. Many slight varieties of this plant are considered as species by the Continental botanists.

9. C. *hederácea* L. (*Ivy-leaved Bell-flower*); stem weak filiform, leaves all stalked cordate angulato-dentate glabrous. *E. Bot.* t. 73. Wahlenbergia hederacea *Reich.: Ed. Cat.* p. 15.

In moist shady woods, in the south of England, and the west of Scotland; Wales, and Ireland. *Fl.* July, Aug. ♃. — A most graceful little plant, growing in lax tufts like *Sibthorpia Europæa*. *Peduncles* long, slender, mostly terminal. *Flowers* half an inch or more in length, at first drooping, then erect; pale purplish-blue. *Fruit*, which I possess on beautiful specimens, communicated to me by Mr. W. Wilson, from N. Wales, an almost globose *capsule*, three fourths adhering to the *calyx*,

opening, not at the sides, but in the upper free part, between the persistent segments of the calyx. This is included in the genus *Wahlenbergia* of Schrader. But it has not the habit of the other *Wahlenbergiæ*, which are, as M. Alphonse De Candolle observed to me, all natives of the southern hemisphere.

** *Corolla nearly rotate.*

10. C. *hýbrida* L. (*Corn Bell-flower*); stem simple or often branched from the base, leaves oblong crenate waved, corolla widely spreading shorter than the calycine segments, capsule elongated triangular. *E. Bot.* t. 375. — Specularia hybrida, *Ed. Cat.* p. 13.

Corn-fields of a dry and chalky nature, chiefly confined to the middle and southern parts of England : near Guillon, Edinburgh : *Dr. Balfour. Fl.* Aug. ☉.

2. Phyteúma *Linn.* Rampion.

Cor. rotate, in 5 deep segments. *Filaments* dilated at the base. *Stigma* 2—3 cleft. *Caps.* of 2—3 cells, bursting at the side. (*Flowers in dense bracteated spikes or heads.*) — Name : φυτευμα (the same as φυτον), the *plant ;* given, *par excellence*, to some medicinal plant by the ancients, but which probably bore little or no relation with the present.

1. P. *orbiculáre* L. (*round-headed Rampion*) ; head of flowers roundish, radical leaves ovato-oblong petiolate crenate those of the stem as well as the bracteas lanceolate. *E. Bot.* t. 142; *Ed. Cat.* p. 10.

Chalky soils, to the south of London; but rare. On the downs of Sussex and Hampshire ; in Surrey and Kent. *Fl.* Aug. ♃. — *Stem* 1 foot high. *Root-leaves* numerous, but often withering while the stem is yet in perfection, as is the case with those of *Campanula rotundifolia : caulíne* ones remote, gradually becoming smaller upwards. *Heads* of *flowers* of a most beautiful blue colour. The *capsules* too form a curious oval *head*, with their persistent calyces, each *calyx* spreading in a stellated manner.

2. P. *spicátum* L. (*spiked Rampion*) ; flowers in an oblongo-cylindrical spike, radical leaves cordato-oblong petiolate somewhat doubly serrated, upper ones and bracteas linear-lanceolate short sessile. *Lindl. Syn.* p. 135 ; *Borrer in E. Bot. Suppl.* t. 2598; *Ed. Cat.* p. 10.

Woods, thickets, hedges, and fields recently cleared of wood, in several stations about Mayfield and Waldron, Sussex : *Mr. Borrer.* Warbleton : *Mr. E. Jenner.* First detected about Mayfield, in 1825, by the *Rev. Ralph Price. Fl.* June, July. ♃. — Formerly cultivated, and the *root* eaten as a salad or boiled. Much taller than the last species. *Spike* of *flowers* 2—4 inches long, greenish-white. Upper part of the *stem* almost bare of *leaves.*

3. Jasióne *Linn.* Sheep's-bit.

Cor. rotate, in 5 deep segments. *Anthers* united at their base. *Stigma* club-shaped. *Caps.* 2-celled, opening at the

top. (*Flowers collected into a head, within a many-leaved involucre.*) — Name supposed from ιον, a *violet*, from the blue colour of the flowers; but applied by Pliny to an esculent plant.

1. J. *montána* L. (*annual Sheep's-bit* or *Sheep's-Scabious*); leaves linear waved hispid, peduncles solitary elongated, root annual. *E. Bot.* t. 282; *Ed. Cat.* p. 7.

Dry heathy pastures, in a light gravelly or heathy soil. *Fl.* June, July. ☉. — *Stem* 6—10 inches high, branched. *Flowers* bright blue, in terminal, dense, hemispherical *heads*, surrounded by a many-leaved *involucre*. *Cal.* small, superior, 5-toothed. *Cor.* in 5 deep and narrow segments. *Anthers* united at the base. The whole inflorescence has, indeed, a very near affinity with that of the Class *Syngenesia*, where Linnæus placed it.

4. Lobélia *Linn.* Lobelia.

Cor. irregular, 2-lipped, cleft longitudinally on the upper side. *Anthers* united. *Stigma* hairy. *Capsule* 2—3-celled, the upper free part 2-valved.—Named in honour of *Matthias Lobel* or *L'Obel*, a Fleming, who settled in England, where he published several learned botanical works.

1. L. *úrens* L. (*acrid Lobelia*); leaves toothed nearly glabrous, radical ones obovate petioled, upper ones lanceolate sessile, raceme terminal bracteated, calyx rough. *E. Bot.* t. 953; *Ed. Cat.* p. 8.

Heathy ground, very rare; only found near Axminster. *Fl.* Aug. Sept. ♃. — Milky, and, as its name implies, highly acrid. One foot or more high, with distant *leaves* and axillary branches. *Flowers* deep-purple, slightly downy externally.

2. L. *Dortmánna* L. (*Water Lobelia*); leaves radical subcylindrical and obtuse of two parallel tubes, stem scarcely leafy, flowers racemed. *E. Bot.* t. 140; *Ed. Cat.* p. 8.

Lakes in the north and north-west of England, Scotland, and Ireland, especially in the mountainous parts, frequent; often forming a green carpet at the bottom of the water with its densely-matted foliage. *Fl.* July, Aug. ♃. — *Root* a small, thick, fleshy stock, from which descend many fibres, and sending forth creeping filiform runners (*Mr. W. Wilson*). *Leaves* 2—3 inches long, a little recurved, formed of two parallel tubes or cells. *Scape*, or almost *leafless stem*, a foot or more high, according to the depth of the water. *Flowers* pale blue, drooping; *fruit* erect.

Ord. XLVIII. VACCINIEÆ.

Calyx-tube adnate with the *ovary*, the *limb* with from 4—6 more or less distinct lobes. *Corolla* lobed as the calyx. *Stamens* distinct, double the number of the lobes of the corolla, inserted beneath an epigynous disk. *Anthers* with two cells, opening by 2 pores, and often furnished with 2 awns. *Ovary* 4—5-celled, 1- or many-seeded. *Style* and *stigma* simple. *Berry* with minute *seeds*. *Albumen* fleshy. — Shrubs, *with*

alternate often coriaceous leaves; chiefly inhabiting mountainous situations or high northern latitudes, slightly tonic and astringent; the fruit esculent.

1. Vaccínium *Linn.* Whortleberry.

Cal. superior, 4—5-toothed. *Cor.* of 1 *petal,* ovate, campanulate or rotate, 4—5-fid. *Anthers* with two pores. *Berry* globose, 4-celled, many-seeded.—Name: some say the ὑακινθος of the Greeks, and hence synonymous with *Hyacinthus;* but the true etymology of the word is unknown.

* *Leaves deciduous. Anthers with* 2 *dorsal awns.*

1. V. *Myrtíllus* L. (*Bilberry* or *Whortleberry*); peduncles 1-flowered, leaves ovato-serrate deciduous, stem angular, stamens 8—10. *E. Bot.* t. 456; *Ed. Cat.* p. 14.

Woods and heathy places, chiefly in mountainous or alpine districts, abundant. *Fl.* May. ♄. — A small *shrub,* about 1 foot high. *Flowers* drooping, urceolate, almost waxy, greenish with a red tinge. *Anthers* tubular, each cell opening by a pore at the extremity, and having a horn at the back. *Berries* black, glaucous, very agreeable to the taste, and much eaten in the Highlands of Scotland.

2. V. *uliginósum* L. (*great Bilberry* or *Bog Whortleberry*); peduncles 1-flowered, leaves obovate entire veined deciduous, stems rounded. *E. Bot.* t. 381; *Ed. Cat.* p. 14.

In mountain bogs, Cumberland and Westmoreland: more frequent in the Highlands of Scotland, ascending even nearly to the summits of the mountains. *Fl.* May. ♄. — *Leaves* glaucous, especially beneath. *Cor.* ovate, flesh-coloured, smaller than in the last; *anthers* similar. *Berries* agreeable, but inferior in flavour to those of *V. Myrtillus.* — The leaves are added to *Lycopodium alpinum* by the Icelanders, in order to produce a yellow dye for colouring woollens.

** *Leaves persistent, evergreen. Anthers awnless at the back.*

3. V. *Vitis Idæa* L. (*red Whortleberry, Cow-berry*); racemes terminal drooping, flowers campanulate, leaves evergreen obovate dotted beneath, their margins slightly revolute nearly entire. *E. Bot.* t. 598; *Ed. Cat.* p. 14.

Dry places on heaths, mountains, and in woods, in the north of England, Wales, Scotland, and Ireland. *Fl.* May, June. ♄. — A low, somewhat straggling *shrub,* with leaves resembling those of the *Box. Flowers* pale flesh-coloured, open at the mouth, and with deeper and more spreading segments than the two preceding species.

4. V. *Oxycóccos* L. (*Marsh Whortleberry, Cranberry*); peduncles terminal single-flowered, leaves ovate evergreen glaucous beneath, their margins revolute and entire, cor. 4-partite revolute, stem filiform. *E. Bot.* t. 319; *Ed. Cat.* p. 14. Oxycoccos palustris *Rich.*

Peat-bogs, especially among *Sphagnum,* in various parts of England, Scotland, and Ireland. *Fl.* June. ♄. — *Stems* straggling, wiry, 8—10 inches long. *Leaves* small. *Flowers* of a bright rose-colour. *Cor.*

deeply divided, the segments singularly revolute; on which account this species has been by some botanists removed from *Vaccinium*. The fruit is highly agreeable, making the best of tarts; at Longtown, on the borders of Cumberland, it forms no inconsiderable article of trade.

Sub-Class III. Corolliflorae. (Ord. XLIX.—LXVI.)

Corolla monopetalous, bearing the stamens, hypogynous (inserted upon the receptacle, at the base of the ovary, which is thus free, not adnate with the calyx).

Ord. XLIX. ERICEÆ.

Calyx of 4 or 5 divisions, persistent. *Corolla* of 4 or 5 divisions, regular or irregular, almost hypogynous, generally marcescent. *Stam.* 8. *Anthers* 2-celled, the cells separating at the apex or the base, opening by pores and often appendaged. *Ovary* surrounded by a disk or scales, many-celled, many-seeded. *Style* 1. *Stigma* 1, often lobed. *Fruit* a capsule, many-celled, with a central receptacle, many-seeded. *Albumen* fleshy. — Shrubs, *with opposite or whorled mostly evergreen and rigid leaves, without stipules.* — Many astringent and diuretic, some poisonous, as *Rhododendron* and *Kalmia*.

1. Erica *Linn.* Heath.

Cal. inferior, of 4 leaves. *Cor.* of 1 *petal*, campanulate or ovate, often ventricose. *Capsule* 4-celled, 4-valved, dissepiments from the middle of the valves. — Named from ερικω, to *break*, because it was formerly supposed to have the power of destroying calculi in the bladder.

1. E. *Tétralix* L. (*Cross-leaved Heath*); anthers with two acute awns at the base included, corolla ovate as long as the style, leaves 4 in a whorl linear ciliated, flowers capitate. *E. Bot.* t. 1015; *Ed. Cat.* p. 5.

Heaths and moory ground, abundant. *Fl.* July, Aug. ♄. — *Flowers* rose-coloured, sometimes white, drooping. They have been found cleft into several divisions, and with the stamens turned into petaloid segments. It varies much as to the number of ciliæ on the leaves and calyx, and occasionally loses them entirely.

2. E. *Mackáii* Hook. (*Mr. Mackay's Heath*); anthers with 2 acute awns at the base included, corolla ovate a little shorter than the style, leaves 4 in a whorl ovate ciliated glabrous above almost white beneath, flowers capitate. *Hook. Comp. to Bot. Mag.* vol. i. p. 159; *Dur. Plant. Sel. Hispano-Lusit.* sect. i. *Asturicæ*, n. 274; *Iter. Astur. in Ann. des Sc. Nat.* vol. vi. p. 125. E. Mackaiana *Bab. in Linn. Trans.* v. xvii. p. 456; *Ed. Cat.* p. 5.

Craigha Moira, Cunnamara: *Mr. Wm. MacCalla. Fl.* Aug. Sept. ♄. — The broad, almost exactly ovate, leaves, with a great proportion of almost white surface beneath, would seem, at first sight, to distinguish this specifically from the preceding; and it is a remarkable fact that it was discovered on the Sierra del Peral in Asturia in the same year as in Ireland. No other station is at present known for it. Can Sir J. E. Smith have had this in view when he describes the leaves of *E. Tetralix* as "*ovate*," or lanceolate? Near Truro, Mr. Watson finds what is probably a hybrid between the latter and *E. ciliaris*, much resembling our *E. Mackaii*.[1]

3. E. *cinérea* L. (*fine-leaved Heath*); anthers with 2 serrated appendages at the base, style a little exserted, corolla ovate, stigma capitate, leaves ternate. *E. Bot.* t. 1015; *Ed. Cat.* p. 5.

Heaths, abundant. *Fl.* July, Aug. ♄. — *Flowers* in rather large whorled *racemes*, drooping, reddish-purple. *Leaves* nearly linear, glabrous. This plant is used for various œconomical purposes; its flowers are sometimes white.

4. E. *Mediterránea* L. (*Mediterranean Heath*); anthers without awns and as well as the style exserted, corolla narrow urceolate, bracteas above the middle of the peduncle, calyx coloured, flowers in leafy racemes, leaves 4 in a whorl linear. *Bot. Mag.* t. 471; *Ed. Cat.* p. 5. — β. flowering branches and style shorter. *Hook. in E. Bot. Suppl.* t. 2774.

β. Boggy ground, on Urrisbeg Mountain, Cunnamara, Ireland, covering a space of at least 2 acres: *J. T. Mackay, Esq. Fl.* April. ♄. — In September, 1830, Mr. Mackay first communicated to me this important discovery. This *var.* seems intermediate between the *E. Mediterranea* of Bot. Mag. and *E. carnea*.

5. E. *vágans* L. (*Cornish Heath*); anthers without awns bifid and as well as the style exserted, corolla campanulate, leaves 3—4 in a whorl, flowers axillary crowded. *E. Bot.* t. 3; *Ed. Cat.* p. 5. E. multiflora *Huds.* (not *L.*)

On heaths in Cornwall, abundant. (*E. Fl.*) The late *Rev. J. S. Tozer* assured me that it was confined to the serpentine district of Goonnely and Liskeard, near the Lizard, and is thence called "*Goonnely*," not *Cornish, Heath:* but *Miss Warren* of Flushing finds it in a furze croft in Mylor, far from any serpentine; a parish, as that lady observes, remarkable for being the only one among the 11,700 parishes of England, that produces all the known species and varieties of English Heath. Islet on the coast of Waterford, near Tramore, Ireland: *Dr. Burkett. Fl.* July, Aug. ♄. — Well distinguished from all our British *Ericæ* by its campanulate, not ovate, *corollas*.

[1] "The var., found by me at Truro, agrees with *E. Tetralix* in all respects save two, namely, its ventricose corolla, and flowers more or less racemose; and in those particulars it comes near *E. ciliaris*. *E. Mackaii*, on the contrary, has the ordinary corolla and inflorescence of *E. Tetralix*, but the broad leaves of *E. ciliaris*. But the ovate or linear leaves merely depend on the degree in which the edges of the leaves are rolled back. I have indisputable *E. Tetralix* with ovato-lanceolate leaves, a garden specimen; the root brought from Esher Common, Surrey." — *Watson in litt.*

6. E. *ciliáris* L. (*ciliated Heath*); anthers without awns bifid included, corolla ovate inflated, leaves ovate 4 in a whorl ciliato-glandulose, flowers in terminal unilateral racemes. *Hook. in E. Bot. Suppl.* t. 2618; *Ed. Cat.* p. 5.

Boggy ground, Cornwall. Near Truro and Penryn (on dry ground: *Borrer*), frequent, and on the north coast of Cornwall. Near Corfe Castle, Dorset. *Fl.* June, July. ♄. — Unquestionably the most interesting and beautiful addition that has been made to our British Flora for many years. The *flowers* are as large as those of *Menziesia cærulea*, and more highly coloured; while the *leaves* are elegantly fringed with hairs, and each hair is tipped with a gland.

2. Callúna *Salisb.* Ling.

Cal. inferior of 4 coloured leaves, concealing the *cor.*, accompanied by 4 *bracteas*, resembling an outer calyx. *Cor.* campanulate. *Stam.* 8. *Caps.* 4-celled, 4-valved; dissepiments adhering to the *axis* of the fruit; *valves* opening at the dissepiments and separating from them. — Named from καλλυνω, to *cleanse* or *adorn*, and hence peculiarly applicable, as Sir J. E. Smith observes, to this plant, whether we consider the beauty of its flowers, or the circumstance of brooms being made of its twigs.

1. C. *vulgáris* Salisb. (*common Ling*); *Ed. Cat.* p. 3. Erica *L.*: *E. Bot.* t. 1013.

Heaths and moors, common; sometimes with white fl. *Fl.* June—Aug. ♄. — A low, much-branching, tufted *shrub*. *Leaves* small, opposite, with two small decurrent spurs at the base, more or less pubescent, and even hairy in β. of *Sm.* (the *E. ciliaris* Huds. not Linn.), closely imbricated in 4 rows. *Flowers* small, reddish, drooping, nearly sessile, ovate; — a most beautiful double *var.* is found wild near Carclew, Cornwall, by *Mr. Booth*. It varies much in the colour of its flowers and degree of pubescence of the foliage.

This plant is much employed for brooms and for fuel. It makes excellent edging to garden-plots, and bears clipping as well as *Box*.

3. Menziésia *Sm.* Menziesia.

Cal. inferior, cleft to the base into 4—5 deep segments. *Cor.* ventricose. *Stam.* 8—10. *Capsule* 4—5-celled, the dissepiments formed by the inflexed margins of the valves, and opening between these dissepiments. — Name: "Nomen dedi," says the learned founder of this genus, "in honorem *Archibaldi Menzies* Scotici, peregrinatoris et botanici indefessi, priscæ fidei ac urbanitatis viri."

1. M. *cærúlea* Sm. (*Scottish Menziesia*); leaves scattered numerous linear toothed, flower-stalks terminal aggregate simple, flowers 5-cleft decandrous. *E. Bot.* t. 2469; *Ed. Cat.* p. 8.

Heathy moor on the "Sow of Athol," at Dalnaspidal, Perthshire: *Mr. Brown* of Perth. Western isles of Shiant?: *Mr. G. Don. Fl.* June, July. ♄. — A small *shrub; stems* branched, woody and naked below. *Peduncles* 2 inches long, glandular, reddish. *Flowers* large,

beautiful, purple-blue. *Cor.* urceolate. — This plant is far more common in North America than in Scotland. It scarcely yields in beauty to the following species.

2. M. *polifólia* Juss. (*Irish Menziesia*, or *St. Dabeoc's Heath*); leaves ovate, the margins revolute white and downy beneath, flowers 4-cleft octandrous in terminal leafy racemes. Erica Dabeoci *L.*: *E. Bot.* t. 35. Dabœcia polifolia, *Ed. Cat.* p. 4.

Mountainous heaths in Ireland. Croagh Patrick, County Mayo. Abundant in Cunnamara. *Mr. J. T. Mackay* finds it also with pure white fl. *Fl.* June, July. ♄.

4. Azálea *Linn.* Azalea.

Cal. 5-partite. *Cor.* shortly campanulate, regular. *Stam.* 5, straight, inserted at the base of the *cor.* *Anthers* bursting longitudinally. *Caps.* 2—3-valved, 2—3-celled; dissepiment formed by the inflexed margins of the bifid valves. *Seeds* attached to a central, at length free, receptacle. — Named from αζαλεος, *parched, arid*: because in such places the plant grows.

1. A. *procúmbens* L. (*trailing Azalea*). *E. Bot.* t. 865; *Ed. Cat.* p. 2. Chamæledon *Link.* Loiseleuria *Desvaux.*

Dry moory ground, on most of the Scottish Highland mountains, among grass and moss; especially abundant in the north, and nowhere perhaps more plentiful than on the Cairngorum range, where it forms large dark green patches. *Fl.* May, June. ♄. — A low *shrub*, with very woody tortuous *stems*, and crowded leafy *branches*. *Leaves* small, almost like those of *Thyme*, but quite smooth and glossy above, rigid, channelled, their margins remarkably revolute; midrib below broad and prominent. *Flowers* in short terminal *racemes*. *Pedicels* with short ovate *bracteas* at the base, swollen upwards. *Cal.* purple, deeply 5-sometimes 6-partite, segments oblong, fleshy. *Corolla* flesh-coloured, subcampanulate, with 5 oblong, moderately spreading, sometimes unequal, obtuse *segments*. *Stamens* inserted upon a fleshy disk or base to the germen, a little shorter than the corolla. *Anthers* of 2 oval *cells*, opening distinctly by a longitudinal fissure, lead-coloured. *Germen* upon a fleshy base or disk scarcely broader than itself, ovate, 2- or 3-celled. *Style* about equal to it in length; *stigma* capitate, obscurely lobed. *Capsule* broadly ovate, with a somewhat spongy coat, purplish-brown, opening by 2 or 3 valves, according as the cells are 2 or 3; the margins of the valves entering into the capsule and thus forming the dissepiments; again each valve is deeply cleft; so that on looking at the upper half of an open capsule we find 4 or 6 valves or segments, each having *one* of its sides introflexed, to form (with the introflexed side of the neighbouring segment) a dissepiment of a double plate. *Seeds* fixed to 2 or 3 lobes of a central, at length (when the valves open) free, column or *receptacle*, oval, pale brown, dotted.

5. Andrómeda *Linn.* Andromeda.

Cal. deeply 5-cleft. *Cor.* ovate or campanulate. *Stam.* 10. *Anthers* with awns. *Caps.* superior, 4—5-celled, the dissepiments from the middle of the valves. — Named in allusion to the fable of *Andromeda*, who was chained to a rock, and ex-

posed to the attack of a sea-monster: so does this beautiful tribe of plants grow in dreary and northern wastes, feigned to be the abode of præternatural beings.

1. A. *polifólia* L. (*Marsh Andromeda*); leaves alternate lanceolate their margins revolute glaucous beneath, flowers in short terminal racemes. *E. Bot.* t. 713; *Ed. Cat.* p. 1.

Peat-bogs, Larlingford, Norfolk. The north of England, Lowlands of Scotland, and in the Queen's-county and Kerry, Ireland. *Fl.* June. ♄. — A small evergreen *shrub*, with beautiful oval or urceolate, rose-coloured, drooping *flowers*, a good deal concealed among the terminal *leaves*.

6. A'RBUTUS *Linn.* Strawberry-tree. Bear-berry.

Cal. deeply 5-cleft. *Cor.* ovate. *Stam.* 10. *Berry* superior, 5-celled, many-seeded. — Named, according to Théis, from *ar*, *rough*, or *austere*, and *boise*, a *bush*, in Celtic.

1. A. *Unédo* L. (*Strawberry-tree*); stem arboreous, leaves elliptic-lanceolate serrated, panicles terminal, berries tubercled. *E. Bot.* t. 2377; *Ed. Cat.* p. 1.

About the Lakes of Killarney, in woods at Mucruss and at Glengariff near Bantry, Ireland. *Fl.* Sept., Oct. — The fruit ripens the following summer. ♄. — This beautiful evergreen is said to be truly wild in the south of Ireland; though some are of opinion that it has been introduced by the Monks of Mucruss Abbey. The young *leaves* are clothed with glandular hairs. The *flowers* are large, pale greenish-white. The *fruit* red, ungrateful (*Smith*); and hence, it is reported, arises the specific name *Unedo*, because those who had eaten one would not care to eat more. Mr. Wilson finds it palatable when fully ripe. It is a tree which, from its frequency and beauty of foliage, adds greatly to the charms of the Lake scenery of Killarney, and contributes to give it a preference over the Scottish Lakes.

2. A. *alpina* L. (*black Bear-berry*); stem procumbent, leaves wrinkled serrated, racemes terminal. *E. Bot.* t. 2030. Arctostaphylos alpina *Spreng.*: *Ed. Cat.* p. 2.

Dry barren grounds on many of the Highland mountains; Ben Nevis, near the lake; and more frequent on the northern mountains and in Sutherland. Hoy hill, Orkney. *Fl.* May. ♄. — A trailing *shrub*, with obovate, marscescent *leaves* which taper down into a footstalk, and become, in autumn, of a fine red colour. There are a few hairs on the leaf-stalks, and ciliated *bracteas* at the base of the flower-stalks. *Corollas* urceolate, very pale rose-colour, almost white. *Berry* black.

3. A. *Uva Ursi* L. (*red Bear-berry*); stems procumbent, leaves obovate entire evergreen, racemes terminal. *E. Bot.* t. 714. Arctostaphylos Uva Ursi *Spreng.*: *Ed. Cat.* p. 2.

North of England and Ireland; especially abundant in the Highlands and Western Isles of Scotland, growing in dry heathy and rocky places. *Fl.* May. ♄. — *Stems* very strong and trailing; *leaves* obovate, stiff, rigid, glabrous, their margins revolute. *Flowers* in small crowded terminal *racemes*, of a beautiful rose-colour. *Berry* small, red, austere, mealy; but yielding excellent food for the moor-fowl.

Ord. L. MONOTROPEÆ.

Calyx 4—5-leaved, persistent. *Corolla* regular, deciduous, 4—5-lobed. *Stamens* 8—10: *anthers* 2-celled, opening by pores. *Ovary* 4—5-celled, many-seeded. *Style* single. *Stigma* generally lobed. *Capsule* with a central receptacle. *Seeds* arilled. *Albumen* fleshy.— Herbaceous *or somewhat* shrubby, *sometimes leafless and parasitical.* (In *Monotropa* the anthers open by transverse fissures, and the corolla is wanting.) *Chimaphila* of North America is a powerful diuretic.

1. Pýrola *Linn.* Winter-green.

Cal. 5-cleft. *Petals* 5, often connected at the base. *Anthers* opening with 2 pores. *Caps.* superior, 5-celled. *Seeds* numerous, invested with a long *arillus.* —Named from *Pyrus*, a *pear:* from a fancied resemblance in its leaves to those of a *Pear-tree.*

1. P. *uniflóra* L. (*single-flowered Winter-green*); stem bearing a solitary flower, leaves orbicular. *E. Bot.* t. 146. Moneses grandiflora *Salisb.: Ed. Cat.* p. 9.

Woods in Scotland; rare. Fir wood near Brodie House, Forres, Woods at Scone. Coul, Ross-shire. In the Oak wood, Knock of Alves, near Elgin. *Fl.* July. ♃. — *Stem* scarcely any, bearing a few petiolated and obscurely serrated *leaves*, and a single *peduncle*, with one large, nearly white, very fragrant *flower*. *Style* short, straight. *Stigma* large with 8 erect rays.

2. P. *secúnda* L. (*serrated Winter-green*); flowers all leaning one way racemed, leaves ovate serrated. *E. Bot.* t. 307; *Ed. Cat.* p. 10.

Rare in England; Yorkshire, *Ray*. Not unfrequent in fir woods in Scotland, especially in the Highlands. *Fl.* July. ♃.—*Stems* rather straggling, branched. *Peduncles* 4—5 inches high, with several oval scales or *bracteas*. *Flowers* small, greenish-white. *Petals* erect. *Style* much protruded. *Stigma* 5-lobed.

3. P. *rotundifólia* L. (*round-leaved Winter-green*); flowers drooping racemed, leaves obovato-rotundate slightly crenate, style bent down curved upwards at the extremity, much longer than the ascending stamens. *E. Bot.* t. 213; *Ed. Cat.* p. 10.

Moist woods and bushy places; rare. Bradwell and Middleton, Suffolk. Larlingford, Norfolk. Kent. Guernsey, among tall reeds near the sea: *Messrs. Christy* and *Babington*. Gonnacha Wood, Forfarshire: *J. D. Hooker*. Many other places in Scotland and some in Yorkshire have also been assigned as stations of this plant, which is so often confounded with the two following species, that I cannot quote them with equal certainty. *Fl.* July—Sept. ♃.—The largest of the *Pyrolæ*, with white, spreading *flowers:* well distinguished by the direction and relative length of its *stamens* and *style*. The latter is more than twice as long as the fully-formed *capsule*, and is singularly curved. *Stigma* with 5 erect points.

4. P. *média* Swartz (*intermediate Winter-green*); leaves ovato-rotundate crenate, stamens erect much shorter than the straight or slightly decurved style, stigma with 5 erect points. *E. Bot.* t. 1945; *Ed. Cat.* p. 10.

Woods, principally in the north; very general in Scotland, often taken for *P. rotund.* Oxfordshire. County of Antrim, &c. Ireland. *Fl.* July, Aug. ♃ — *Style* protruded beyond the *flower*, straight.

5. P. *mínor* L. (*lesser Winter-green*); leaves ovato-rotundate crenate, stamens erect as long as the very short straight style which is included within the flower, stigma large with 5 divergent rays. *E. Bot.* t. 158 (not good); *Hook. in Fl. Lond.* t. 154; *Ed. Cat.* p. 10. P. rosea, *E. Bot.* t. 2543.

Woods in the north of England and Scotland; most frequent in the Western Highlands and Hebrides. *Fl.* July. ♃.—This is smaller than the last, essentially distinguished from it, and at once characterised by the shortness of its *style* and large radiated *stigma*, quite included within the concave *corolla*.

2. Monótropa *Linn.* Bird's Nest.

Perianth single, of 4—5 leaves, cucullate at the base. *Anthers* 1-celled, 2-lipped. *Caps.* superior, 4—5-celled. *Seeds* numerous, invested with a long *arillus*. — Named from μονος, *one*, and τρεπω, to *turn*; the flowers all pointing one way.

1. M. *Hypópitys* L. (*yellow Bird's Nest*); lateral flowers with 8 stamens, terminal one with 10. *E. Bot.* t. 713; *Ed. Cat.* p. 9.

Beach and fir-woods, where the soil is dry; but not common either in England or Scotland. In Sussex, occurring in *rings* sometimes 15 feet in diameter, and comprising many trees within the circumference. "Is this analogous to the Fairy rings of Fungi?" (*Rev. G. E. Smith.*) Counties of Dublin and Louth, Ireland. *Fl.* June, July. ♃. — *Root* fibrous, parasitic? *Stem* stout, erect, 6 — 9 inches high, simple or slightly branched, instead of *leaves* having numerous ovate scattered *scales*, of the same dingy yellow hue as the stem. *Raceme* terminal, a continuation of the stem, at first drooping, then erect. *Flowers* on short scaly or bracteated *pedicels*, large, of the same colour as the rest of the plant. *Stamens* alternately smaller. *Germen* 4—5-lobed, ovate. *Stigma* large, peltate. *Seeds* very minute, rarely perfect, enveloped in a reticulated *arillus*.

Ord. LI. ILICINEÆ.

Cal. of 4—6 imbricated lobes. *Corolla* 4—6-lobed, imbricated in æstivation. *Stamens* alternate with the segments of the corolla. *Ovary* with from 2—6 or more cells. *Ovules* solitary, pendulous from a cup-shaped seed-stalk. *Stigma* nearly sessile, lobed. *Fruit* fleshy, with from 2—6 or more stony *seeds*. *Albumen* fleshy. — Trees *or* shrubs. Leaves *coriaceous*. Flowers *small, axillary*. — The Bark and Berries are tonic and astringent. The famous *Paraguay Tea* of South America is a species of *Holly, Ilex Paraguensis*.

1. Ilex *Linn.* Holly.

Cal. 4—5-toothed. *Cor.* rotate, 4—5-cleft. *Stigmas* 4, sessile. *Berry* sphærical, including 4 1-seeded *nuts.* (Some flowers destitute of pistil.)—Named from *ac, sharp,* in Celtic, according to Théis; but this is a very forced derivation.

1. I. *Aquifólium* L. (*common Holly*); leaves ovate acute shining, waved with spinous teeth, peduncles axillary short many-flowered, flowers subumbellate. *E. Bot.* t. 496; *Ed. Cat.* p. 7.

Frequent in hedges and woods, especially in a light or gravelly soil. *Fl.* May, June. ♄.—A small evergreen *tree* of great beauty, with smooth greyish *bark.* *Leaves* alternate, deep shining green, very rigid, the upper ones quite entire, the lower ones generally edged with strong sharp spines. This difference in the foliage has not escaped the notice of poets. The *flowers* are somewhat umbellate, and spring from the axils of the leaves. *Cal.* slightly hairy, small. *Cor.* white. *Berries* bright scarlet.—Excellent for fences, as it bears clipping. The wood is hard and white, and presents a beautiful surface; whence it is much employed for turnery work, for drawing upon, for knife-handles, &c. Of the bark, bird-lime is made. With the leaves and berries our houses and churches are adorned at Christmas, a relic probably of Druidism, during the prevalence of which Dr. Chandler tells us, "houses were decked with them, that the sylvan spirits might repair thither, and remain unnipped by frost and cold winds, until a milder season had renewed the foliage of their darling abodes."

Ord. LII. JASMINEÆ (including Oleineæ).

Calyx divided, toothed, persistent. *Corolla* with from 4—8 divisions, occasionally 0. *Stamens* 2. *Ovary* 2-celled, cells 2- or 1-seeded: *ovules* erect or pendulous. *Fruit* a *berry, drupe,* or *capsule,* separable in two. *Seeds* with or without *albumen.*—Trees *or* shrubs. Leaves *opposite, simple or compound.*—The Jasmines yield a deliciously fragrant oil. Olive oil is the expressed juice of the pericarp (not of the seed) of *Olea Europæa. Manna* is the concrete juice of *Fraxinus rotundifolia* and other species of *Ash.*

1. Ligústrum *Linn.* Privet.

Cor. 4-cleft. *Stam.* 2. *Berry* 2-celled, with the cells 2-seeded.—Named from *ligo,* to *bind;* on account of the use sometimes made of its long and pliant branches.

1. L. *vulgáre* L. (*Privet*); leaves elliptic-lanceolate, panicle compact. *E. Bot.* t. 764; *Ed. Cat.* p. 7.

Thickets, and more frequently in hedges. *Fl.* June, July. ♄.—A *bush* with opposite, evergreen *leaves,* frequently used for fences, as the plant bears clipping. *Flowers* small, white. *Berries* black, globose.

2. Fráxinus *Linn.* Ash.

Cal. 0, or 4-cleft. *Cor.* 0, or of 4 petals. *Stam.* 2. *Caps.* 2-celled, 2-seeded, compressed and foliaceous at the extremity (a

Samara). *Seeds* solitary, pendulous. (Flowers sometimes without stamens.) — Named from φραξις, a *separation*, in allusion to the facility with which the wood may be split.

1. F. *excélsior* L. (*common Ash*); leaves pinnated, leaflets ovato-lanceolate acuminate serrated, flowers without either calyx or corolla. *E. Bot.* t. 1692; *Ed. Cat.* p. 5.—β. *heterophylla* (*simple-leaved Ash*); leaves simple and pinnated. *Ed. Cat.* p. 5. F. heterophylla *Vahl: E. Bot.* t. 2476. F. simplicifolia *Willd.*

Woods and hedges throughout the country. — β. Rare in England. I have specimens from *Mrs. Griffiths*, gathered in Devonshire. *Fl.* in April and May, before the leaves appear. ♄. — One of the noblest of our trees, remarkable in old individuals for the curving upwards of the extremities of their lower pendent branches. There are many varieties. The *weeping Ash* is said to have been first discovered in a field at Gamlingay. By Lochlomond side the trees vary much in the width of the leaflets, some have them all ovate, others quite lanceolate, The *F. heterophylla* may be considered a sort of monstrosity, often with the leaflets united so as to form one single leaf. — The *flowers* are very simple. There is no *calyx* or *corolla*. The *pistil* and *stamens*, often one of each, are sometimes separate, and rise at once from the extremity of the flower-stalk. The wood is valuable for many purposes, especially for implements of husbandry, the young copse-wood for making hurdles, and the older for hop-poles. The roots are injurious to pastures by their spreading to a great extent, and extracting the nourishment from the soil.

Ord. LIII. APOCYNEÆ.

Calyx of 5 persistent divisions. *Corolla* regular, 5-lobed, deciduous; *æstivation* twisted. *Stamens* 5. *Anthers* 2-celled. *Ovaries* 2, 1—2-celled, many-seeded. *Styles* 2—1. *Stigma* 1. *Fruit* a *follicle*, *capsule*, *drupe*, or *berry*. *Seed* albuminose. —Trees *or* Shrubs, *leaves opposite; without stipules, often milky:* — an Order, as it were, between *Gentianeæ* and *Rubiaceæ*, containing acrid and powerful principles. The famous *Tanghin Poison* of Madagascar (see *Botanical Miscellany*, vol. iii. p. 110, and *Botanical Magazine*, tab. 2968) is the seed of *Tanghinia veneniflua*. *Strychnine* is afforded by *Strychnos nux-vomica*. The root of the *Oleander* is poisonous, while the nearly allied *Tabernæmontana*, or *Hya-Hya* of British Guiana, is the milk-tree of that country, and yields a nutritive fluid like cream. *Urceola elastica* affords Caoutchouc. *Vinca minor* is bitter and astringent.

1. Vínca *Linn.* Periwinkle.

Cal. 5-partite. *Cor.* salver-shaped, the segments oblique, spirally imbricated in the bud. *Stam.* 5. *Follicles* 2, erect. *Seeds* naked (destitute of seed-down).—Name: supposed from *vincio*, to *bind*, as the trailing stems do those plants which grow in its neighbourhood.

1. V. *mínor* L. (*lesser Periwinkle*); stem procumbent, leaves oblongo-lanceolate their margins as well as the small lanceolate teeth of the calyx glabrous. *E. Bot.* t. 917; *Ed. Cat.* p. 15.

Hedges and banks in woods; decidedly wild in Devon, with blue and white fl. *Fl.* May, June. ♃.—Wood of the shoots very tough; not so in the following species.

2. V. **májor* L. (*greater Periwinkle*); stem suberect, leaves ovato-cordate their margins as well as those of the elongated subulate segments of the calyx ciliated. *E. Bot.* t. 514; *Ed. Cat.* p. 15.

Woods and thickets. *Fl.* May. ♃.—Twice the size of the former in all its parts. *Corolla* mostly purple in both, but varying in intensity. The *anthers*, *stigma*, and *fruit* (a *follicle*) are highly curious in this genus.

Ord. LIV. GENTIANEÆ.

Calyx divided, persistent. *Corolla* usually regular and persistent, the limb with an imbricated, twisted æstivation, 4-mostly 5, 6, 8, or 10-lobed. *Stamens* as many as lobes of the corolla. *Ovary* 1—2-celled, many-seeded. *Styles* 1 or 2. *Stigmas* 1—2. *Capsule* (or *Berry*) generally 2-valved; the margins of the valves turned inwards and bearing the seeds, where there is one cell; in the 2-celled genera the seeds are on a central receptacle. *Albumen* fleshy.—*Mostly* herbaceous, *generally glabrous* plants, *with opposite leaves and no stipules, eminently bitter and stomachic.—Gentiana lutea* is the *bitter Gentian*, and affords a spirit much used in Switzerland and well known under the name of *Gentian-Wasser: G. Chirita* is a famous East Indian stomachic.

1. Cicéndia *Adans.* Gentianella.

Cal. 4-cleft. *Cor.* 4-cleft, funnel-shaped, marcescent, the *tube* swelling. *Stam.* 4. *Anthers* opening longitudinally. *Stigma* entire. *Caps.* 1-celled, 2-valved. *Seeds* attached to 2 sutural receptacles, which at length separate with the opening of the 2-valved *caps.*—A name of Adanson's, the etymology of which I can no where find explained.

1. C. *filifórmis* Reichb. (*least Gentianella*); leaves linear-lanceolate sessile, stem dichotomous slender, peduncles elongated. *Ed. Cat.* p. 4. Exacum *Sm.: E. Bot.* t. 235; *Hook. in Fl. Lond. N. Ser.* t. 86. Gentiana *Linn.*

Sandy turf-bogs, in the extreme south and south-west of England. In Ireland, it is found near Cork, upon Dursey Island, and at Glengariff. *Fl.* July. ⊙.—A small, slender and graceful plant, with yellow *flowers*, differing from *Gentiana* in the number of *stamens* and divisions of the *cal.* and *corolla.*

2. ERYTHRÆA *Renealm.* Centaury.

Cal. 5-cleft. *Cor.* funnel-shaped, withering, its limb short. *Anthers* at length spirally twisted. *Style* erect. *Stigmas* 2. *Caps.* linear 2-celled. *Br.*—Named from ερυθρος, *red*, the colour of the flowers in most of the species.

1. E. *Centaúrium* Pers. (*common Centaury*); stem nearly simple, leaves ovato-oblong, flowers sessile (or nearly so) fasciculato-paniculate, calyx half as long as the tube of the corolla. *Ed. Cat.* p. 5. Chironia *Curt.* Gentiana, *E. Bot.* t. 417.

Dry pastures, frequent. *Fl.* July, Aug. ⊙.—8—10 inches to a foot high. *Root-leaves* spreading, three-nerved, broader than those of the stem, which are in distant pairs. *Panicles* of *flowers* fascicled near the top of the stem, and forming a sort of *corymb*. *Corolla* handsome, rose-coloured.

2. E. *pulchélla* Hook. (*dwarf branched Centaury*); stem much branched, leaves ovato-oblong, flowers pedicellate in lax panicles, calyx nearly as long as the tube of the corolla. *Hook. Scot.* i. p. 79. Chironia pulchella *Willd.*: *E. Bot.* t. 458. Gentiana pulchella *Swarz.* G. Centaurium β. *L.* E. ramosissima *Pers.*: *Ed. Cat.* p. 5.

Sandy sea-shores; England and Scotland. Cape Clear Island, Ireland. *Fl.* Aug. Sept. ⊙.—*Stems* 2—4 or 6 inches high, slender and much branched from near the base. *Panicle* spreading, leafy, dichotomous, with a single flower-stalk between the branches.—Probably only a *var.* of the preceding. *Cor.* dark purplish-pink: *Miss Warren.*

3. E. *littorális* Hook. (*dwarf tufted Centaury*); stem simple or branched, leaves ovato-oblong, flowers sessile capitato-paniculate, calyx as long as the tube deeply cleft. *Hook. Scot.* i. p. 80. Chironia *Turn. and Dillw. Bot. Guide*, p. 469; *E. Bot.* t. 2305. C. pulchella *Don Fl. Brit. fasc.* i. *n.* 7. E. linariifolia *Pers.*: *Ed. Cat.* p. 5.

Sandy coasts of Northumberland, Lancashire, Wales, Scotland. Portmarnock sands, Ireland. *Fl.* June, July. ⊙.—Varying in height from 2—6 inches. *Leaves* all narrow. *Cal.* segments very long, as long as the tube of the corolla, in my specimens scarcely united by a membrane as in the 2 preceding species: but most of the characters given for this species are said by Mr. Turner, its founder, to vary in individuals he has seen; and I fear it has little right to be kept distinct from *E. Centaurium*. Mr. Wilson finds many specimens which cannot be referred to either, owing to differential marks as slight as those attributed to this and the preceding one.

4. E. *latifólia* Sm. (*broad-leaved tufted Centaury*); stem 3-cleft at the top, flowers in dense forked tufts, calyx as long as the tube, segments of the corolla lanceolate, lower leaves broadly elliptical with 5 or 7 ribs. *E. Bot. Suppl.* t. 2719; *Ed. Cat.* p. 5. Chironia Centaurium *var.* 2 *Sm. Fl. Brit.* p. 1393.

Sea-shore of Lancashire: sandy ground near the sea, to the north

of Liverpool. Near Holy-head. County of Down, Ireland. Isle of Staffa. *Fl.* July. ⊙.—This has more the *appearance* of a species than either of the two last. Some of my Irish specimens have the *leaves* an inch and a half long, and three quarters of an inch broad, not confined to the root, and rising one pair close above the other. Yet I can hardly persuade myself it is distinct from *E. Centaurium.*

3. GENTIÁNA *Linn.* Gentian.

Cal. 4—5-cleft. *Cor.* subcampanulate, funnel- or salver-shaped, tubular at the base, destitute of nectariferous glands. *Stam.* 5. *Styles* often combined. *Caps.* of 1 cell, 2-valved.—Named from *Gentius* king of Illyria, who, according to Pliny, brought into use the species so much valued in medicine, the *bitter Gentian, G. lutea.*

* *Cor. subcampanulate, the mouth naked.*

1. G. **acaúlis* L. (*dwarf Gentian*); leaves oblongo-lanceolate acute, flower solitary 5-cleft about as long as the quadrangular stem. *E. Bot.* t. 1594.

Near Haverford-West: *M. de St. Amans.* The outcast of a garden, not even naturalised. *Fl.* June, July. ♃.

2. G. *Pneumonánthe* L. (*Marsh Gentian*); leaves linear, flowers terminal and axillary sessile, corolla 5-cleft. *E. Bot.* t. 28; *Ed. Cat.* p. 6.

Moist heathy places, in several parts of England. *Fl.* Aug., Sept. ♃.—*Stem* upright, 4 to 6 or 8 inches tall. *Corolla* large, deep blue within, having 5 broad greenish lines corresponding with the segments.

** *Cor. somewhat funnel- or salver-shaped, with 5 large and 5 smaller segments.*

3. G. *vérna* L. (*Spring Gentian*); stem 1-flowered, leaves crowded ovate, corolla salver-shaped with 5 large and 5 small alternate bifid segments. *E. Bot.* t. 493; *Ed. Cat.* p. 6.

Alpine pastures, rare; between Gort and Galway, Ireland: on limestone rocks in the Barony of Burren in the same country. Middleton in Teesdale, Durham. *Fl.* April, ♃.

4. G. *nivális* L. (*small Alpine Gentian*); branches single-flowered, leaves elliptical, corolla salver-shaped 5-cleft with intermediate small bifid segments, angles of the calyx acute (brown). *E. Bot.* t. 896; *Ed. Cat.* p. 6.

Mountains of Scotland, exceedingly rare, having been long gathered only on Ben Lawers, by *Mr. Dickson;* but since found abundantly on rocks on both sides of Glen Isla, Clova, by *Dr. Wright* and *Dr. Graham.* Craigalleach: *Mr. F. Adamson. Fl.* Aug. ⊙.—This rare and beautiful little alpine plant varies in height from 1 to 6 inches.

*** *Cor. 4—5-cleft, somewhat salver-shaped, fringed at the throat.*

5. G. *Amarélla* L. (*small-flowered Autumnal Gentian*); stem much-branched slender, root-leaves oval spathulate upper ones ovato-lanceolate sessile, cal. lobes lanceolate nearly equal shorter than the tube of the corolla which is cylindrical its

limb 5-cleft, germen linear-oblong and as well as the capsule sessile. *Griseb. Gent.* p. 238; *Dicks. Hort. Sicc.* n. 5; *Fl. Dan.* t. 328; *Ed. Cat.* p. 6.

Dry pastures; Yorkshire. Most abundant in Scotland. *Fl.* April, to end of summer and autumn. ⊙.

6. G. *Germánica* Willd. (*large-flowered Autumnal Gentian*); stem erect stout, lower leaves spathulate upper ones ovato-lanceolate sessile, cal. lobes nearly equal ovato-lanceolate shorter than the tube of the corolla which is enlarged upwards its limb 5-cleft, germen oblong linear and as well as the capsule stipulate. *Griseb. Gent.* p. 244; *Ed. Cat.* p. 6. G. Amarella *Sm. E. Bot.* f. 236; *Hook. Fl. Lond. N. S.* p. 35 (*non Linn.*).

Dry (especially limestone ?) pastures. Near Ripon (*Mr. Brunton*), and probably in many other places. *Fl.* Summer and autumn. ⊙.—In the *Flora Londinensis* I stated it as my opinion that the *G. Amarella* and *G. Germanica* were not specifically different. Grisebach, Koch, and others think differently; and as the former author has examined and made his remarks on the specimens in my herbarium, I have given his characters, and would direct the attention of botanists to the subject. Mr. H. Watson is of opinion that they are but trifling varieties of each other. In all my numerous specimens of *G. Amarella*, the plant takes a more or less pyramidal form, and the flowers are far more numerous, crowded, and considerably smaller than in *G. Germanica*.

7. G. *campéstris* L. (*Field Gentian*); stem very much branched many-flowered, leaves ovato-lanceolate, 2 outer segments of the calyx very large ovate, corolla 4-cleft. *E. Bot.* t. 237; *Ed. Cat.* p. 6.

Hilly pastures, frequent on a limestone or chalky soil in England and Ireland. Abundant in Scotland, especially near the sea. *Fl.* Aug.—Oct. ⊙.—*Flowers* larger than in the preceding species, and so numerous in specimens gathered on the Isle of Skye, that I counted 86 on one plant.

4. Swértia *Linn.* Felwort.

Cal. 4—5-partite. *Stam.* 4—5. *Cor.* rotate, with 2 nectariferous glands at the base of each segment. *Caps.* 1-celled, 2-valved.—Named after *Emmanuel Swert*, a Dutch botanist, who published a *Florilegium* in 1612.

1. *S. *perénnis* L. (*Marsh Felwort* or *Swertia*); radical leaves nerved ovate attenuated at each extremity, peduncles corymbose, segments of the corolla lanceolate acute. *E. Bot.* t. 1441.

Wales ?: *Dr. Richardson*, according to *Hudson*. But there is reason to apprehend some mistake, and that it was never found wild in Britain. *Fl.* Aug. ♃.

5. Chlóra *Linn.* Yellow-wort.

Cal. inferior, of 8 deep segments. *Cor.* of 1 *petal*, nearly rotate. *Stam.* 8. *Stigmas* 2, bifid. *Caps.* 1-celled, 2-valved,

many-seeded. — Name derived from χλωρος, *pale* or *yellowish green*, in allusion to the colour of its flowers.

1. C. *perfoliáta* L. (*perfoliate Yellow-wort*); leaves connato-perfoliate ovate glaucous. *E. Bot.* t. 60; *Ed. Cat.* p. 4.

Chalky and hilly pastures, chiefly in the middle and southern parts of England. In Ireland, on gravelly soil about Dublin, frequent. *Fl.* July—Sept. ☉. — Allied to the *Gentians*. *Plant* very glaucous, with remote *leaves;* panicled above, and bearing many bright yellow *flowers;* very bitter.

6. Menyánthes *Linn.* Buckbean.

Cal. 5-partite. *Cor.* funnel-shaped, the segments hairy within. *Stam.* 5. *Stigma* 2-lobed. *Capsule* 1-celled; *seeds* parietal. — Name: μηνη, a *month*, and ανθος, a *flower*; some say from the duration of the flower.

1. M. *trifoliáta* L. (*Buckbean*, or *Marsh Trefoil*). *E. Bot.* t. 495; *Ed. Cat.* p. 8.

Marshy places, boggy ground, &c., frequent. *Fl.* June, July. ♃. — *Roots* densely creeping and matted, so as often to render the boggy ground firm where the plant grows. *Leaves* ternate, stalked: *leaflets* obovate, obscurely toothed. The base of the leaf is sheathing, whence arises a *flower-stalk* supporting a compound *raceme* or *thyrsus*, of many white *flowers*, tipped externally with red and beautifully fringed with white filaments within.

7. Villársia *Vent.* Villarsia.

Cal. 5-partite. *Cor.* rotate, the limb often ciliated. *Stam.* 5. *Caps.* 1-celled. *Seeds* parietal. — Named in compliment to *M. de Villars*, author of *Flore du Dauphiné*.

1. V. *nymphæoídes* Vent. (*Nymphæa-like Villarsia*); leaves orbicular-cordate floating, peduncles aggregate single-flowered, corollas ciliated. *Hook. in Fl. Lond. N. S.* t. 168; *Ed. Cat.* p. 15. Menyanthes *Linn.: E. Bot.* t. 217.

Rare; in rivers and still waters. In the Thames. Abundant in the canal near Downham Market and Wisbeach. In Yorkshire. *Fl.* July, Aug. ♃. — A beautiful plant, easy of cultivation, and difficult to be eradicated. *Flower* large, yellow, curiously plaited. The canals in Holland are sometimes covered with this plant, which has quite a different habit from the true *Menyanthes*. *Stigma* 5-cleft. The ripe *fruit* I have not seen. Mr. Brown says that, in all the *aquatic* species of this genus, the *capsule* is valveless; 2-valved in the others.

Ord. LV. POLEMONIACEÆ *Juss.*

Calyx 5-parted, persistent, sometimes irregular. *Corolla* regular, 5-lobed. *Stamens* 5, from the tube of the corolla. *Ovary* single, 3-celled, with few or many ovules. *Style* simple. *Stigma* trifid. *Capsule* 3-celled, valves separating from the axis. *Embryo* straight. *Albumen* horny. — *Herbaceous* plants. Leaves *simple or compound*.

1. Polemónium *Linn.* Jacob's Ladder.

Cal. 5-cleft. *Cor.* rotate. *Stam.* inserted upon the 5 teeth or valves which close the mouth of the corolla. *Stigmas* 3. *Capsule* 3-celled, 3-valved. — Named from πολεμος, *war;* according to Pliny, this plant having caused a war between two kings who laid claim to its discovery.

1. P. *cærúleum* L. (*blue Jacob's Ladder*); leaves pinnated glabrous, leaflets oblongo-lanceolate. *E. Bot.* t. 14; *Ed. Cat.* p. 10.

Banks and bushy places, rare; chiefly found in the north. In Derbyshire and Yorkshire. About Queensferry, Arniston and Delvine woods, Scotland. Knockmaron Hill, Ireland. *Fl.* June, July. ♃. — 1—2 feet high. *Stem* angular. *Flowers* large, blue, sometimes white.

Ord. LVI. CONVOLVULACEÆ *Juss.*

Calyx of 4—5 divisions, permanent, imbricated, often very unequal. *Corolla* regular, deciduous; the limb plaited, 4—5-lobed. *Stamens* 4—5 from the base of the corolla. *Ovary* with 2—4 cells, seldom 1, sometimes in 2 or 4 divisions, few-seeded. *Style* 1, often divided, rarely 2. *Disk* annular, hypogynous or wanting. *Capsule* 1—4-celled, the valves fitting at their edges to the angles of a loose dissepiment, bearing the *seeds* at the base, or bursting transversely. *Albumen* in small quantity, mucilaginous. *Embryo* curved. *Cotyledons* plaited. — Herbs *or* Shrubs, *generally climbing, milky, and purgative. Scammony* is the product of *Convolvulus Scammonia: Jalep* of *C. Jalapa.* The *Sweet Potato,* a most valuable esculent root of the tropics and warm climates, is the *Convolvulus Batatas. Cuscuta* has no leaves, and is parasitical.

1. Convólvulus *Linn.* Bindweed.

Cal. 5-cleft. *Cor.* campanulate, plicate. *Stigmas* 2. *Caps.* of 1—3—4 cells, with as many valves. *Cells* 1—2-seeded. — Named from *convolvo,* to *entwine;* whence, too, the English name *Bindweed.*

1. C. *arvénsis* L. (*small Bindweed*); stem climbing, leaves sagittate, their lobes acute, peduncles mostly single-flowered, bracteas minute distant from the flowers. *E. Bot.* t. 312; *Ed. Cat.* p. 4.

Corn-fields, hedges, &c., especially in a light soil. *Fl.* June, July. ♃. — *Flowers* rather small, rose-coloured. *Root* running very deep into the ground, and difficult of extirpation.

2. C. *sépium* L. (*great Bindweed*); stem climbing, leaves sagittate their lobes truncate, peduncles 4-sided single-flowered, bracteas large heart-shaped close to the flower. *E. Bot.* t. 313; *Ed. Cat.* p. 4. Calystegia *Br.*

Moist woods and hedges, *Fl.* July, Aug. ♃. — Much larger than

the last in every part. *Flowers* very large, showy, pure white (sometimes striped with pink: *Wilson*).

3. C. *Soldanélla* L. (*Sea-side Bindweed*); stem prostrate, leaves reniform fleshy, peduncles 4-sided single-flowered their angles winged, bracteas large ovate close to the calyx. *E. Bot.* t. 314; *Ed. Cat.* p. 4. Calystegia *Br.*

Sea-shore in sandy places, frequent. *Fl.* June—Aug. ♃.—*Root* long, creeping. *Flowers* few, large, rose-coloured. *Capsules* 1-celled.

2. Cúscuta *Linn.* Dodder.

Cal. 4—5-cleft. *Cor.* campanulate, 4—5-lobed. *Caps.* bursting all round transversely at the base, 2-celled, with the cells 2-seeded. — *Parasitical leafless* plants, *with long twining filiform* stems. — Name: the same as κασσυθα, probably from the Arabic *Keshout.* (*Théis.*)

1. C. *Europæa* L. (*greater Dodder*); heads of many flowers, styles included, corolla (in flower) with a cylindrical tube longer than the close-pressed calyx. *E. Bot.* t. 378. *Hook. in Fl. Lond. N. S.* t. 67; *Ed. Cat.* p. 4.

Parasitical on nettles, thistles, &c., not very general. *Fl.* Aug., Sept. ☉. — *Stems* very long, red, having small tubercles or papillæ, which serve as roots. *Flowers* clustered, of a pale yellowish-rose colour. *Scales* exist in the *corolla*, according to some authors, but are wanting, according to others.

2. C. *Epilínum* Weihe (*Flax Dodder*); heads of about 5 fleshy flowers, styles included, corolla with a globose tube scarcely longer than the spreading campanulate calyx. *Reich. Ic. Bot.* t. 500; *Ed. Cat.* p. 4.

On flax, Ellesmere: *J. E. Bowman, Esq.* *Fl.* Aug., Sept. ☉. — *Stems* simple, yellowish-green. *Flowers* fewer in a head, and much more succulent than in the preceding species, and cellular when seen under a lens. *Tube* of corolla always globose; *filaments* very short. *Calyx* broad and spreading with 5 broad acute teeth. — I believe this to be quite a distinct species. It is abundant in Germany, whence it was probably introduced with flax-seed to us, and is very injurious to the crops of this plant, upon which it is a parasite.

3. C. *Epíthymum* L. (*lesser Dodder*); styles exserted, heads of many small flowers, corolla with a straight tube longer than the funnel-shaped calyx. *E. Bot.* t. 55. C. Europæa, *Ed. Cat.* p. 4.

Frequent on furze, heath, and thyme, in exposed situations in England and Scotland. *Fl.* July, Aug. ☉. — Smaller than the two preceding species, especially in the *flowers*. *Calyx-segments* acuminate.

Ord. LVII. BORAGINEÆ *DC.*

Calyx 5- rarely 4-cleft, persistent. *Corolla* hypogynous, monopetalous, most frequently regular, 5-cleft, sometimes 4-cleft, with imbricated æstivation. *Stamens* 5, inserted into the *corolla*, alternate with its segments and equal to them in number, rarely

more. *Ovary* 4-partite, 4-seeded; or simple, 2—4-celled. *Ovules* definite, pendulous. *Achenia* 4, apart or united at the base, or a 4-celled *drupe*, or a *berry* with 2—4 *nuts*. *Seeds* without or nearly without *albumen*. *Radicle* superior. — Herbs *or* Shrubs. Leaves *alternate, without stipules, usually scabrous.* Flowers *generally in* 1*-sided, more or less compound and circinnate spikes or racemes.* — The BORAGINEÆ are mild, emollient, and mucilaginous, sometimes slightly bitter and narcotic. The roots of several species afford a red dye.

* *Throat of the corolla naked.* Gen. 1—3.

1. E'CHIUM *Linn.* Viper's Bugloss.

Cor. irregular, its throat dilated, open and naked. *Stigma* deeply cloven. — Named from εχις, a *viper;* because this, or some allied plant, was supposed to be an effectual remedy against the bite of that animal.

1. E. *vulgáre* L. (*common Viper's Bugloss*); stem herbaceous simple hispid with tubercles, leaves linear-lanceolate hispid, flowers in lateral short spikes, stamens longer than the corolla. *E. Bot.* t. 181; *Ed. Cat.* p. 5. *Var.* flowers white. E. Italicum *Sm.: E. Bot.* t. 2081 (not *L.*).

On old walls, fields, and waste grounds, especially in a sandy or gravelly soil: common on the Surrey hills, with pale fl. *Fl.* June, July. ♂. — 2—3 feet high. *Root-leaves* spreading, petioled. *Spikes* of *flowers* lateral, secund, recurved, forming in fact one long compound *spike* or *raceme*. *Corolla* very beautiful, at first reddish-purple, then brilliant blue, sometimes white. *Echium Italicum* is not now considered a British plant.

2. E. *violáceum* L. (*Violet-flowered Bugloss*); stem herbaceous diffuse branched piloso-hispid, lower leaves ovato-oblong petiolate, upper ones oblong cordate and somewhat amplexicaul at the base, spikes elongated, stamens scarcely longer than the corolla. *L. Mant.* p. 42; *Ed. Cat.* p. 5. E. plantagineum, *L. Mant.* p. 202. Lycopsis *Ray Syn.* p. 227.

Plentiful on the sandy grounds about St. Hélier, Jersey. *Fl.* Aug. ♂. (?) — This is quite a distinct species from *E. vulgare* and certainly the *E. violaceum* of Linnæus and the continental botanists. It is much less hispid than *E. vulgare*, destitute of tubercles. The *stem* is branched, spreading, often decumbent. The *spikes* much elongated, bearing more distant *flowers*. The *stamens* are very unequal, 2 of them much longer than the corolla, 2 of them about the same length, and 1 shorter.

2. PULMONÁRIA *Linn.* Lungwort.

Cal. with 5 angles, 5-cleft. *Cor.* funnel-shaped, its throat naked. — Named from *pulmo*, the *lungs;* from the use formerly made of this and other *Borragineæ* in pulmonary affections. In the present instance, the spotted leaves, resembling the lungs, were the principal recommendation.

1. P. *officinális* L. (*common Lungwort*); leaves scabrous, radical ones ovato-cordate petiolate, upper ones of the stem sessile ovate. *E. Bot.* t. 108 (*excl. the root-leaves*); *Ed. Cat.* p. 10.

Woods and thickets, rare. Durham and Bedfordshire; more frequent in Hampshire.[1] Near Edinburgh and Glasgow; but scarcely wild. *Fl.* May. ♃. — About 1 foot high. *Stem-leaves* all more or less ovate; lower ones petiolate, upper ones sessile; all with short hairs, and frequently spotted. *Flowers* purple.

2. P. *angustifólia* L. (*narrow-leaved Lungwort*); leaves scabrous, radical ones petiolate, upper ones sessile, all lanceolate. *E. Bot.* t. 1628; *Ed. Cat.* p. 10.

Woods and thickets, rare. Isle of Wight, and New Forest, Hampshire; and in Flintshire. *Fl.* May, June. ♃. — Much taller than the preceding, and very different in the shape of its foliage, which is seldom spotted.

3. Lithospérmum *Linn.* Gromwell.

Cal. in 5 deep segments. *Cor.* funnel-shaped, its mouth naked (or with very minute scales). — Named from λιθος, a *stone*, and σπερμα, a *seed*; from its very hard shining seeds or nuts. The English name *Gromwell* has the same origin in the Celtic: *graun*, a *seed*, and *mil*, a *stone*.

1. L. *officinále* L. (*common Gromwell, Grey Mill,* or *Grey Millet*); stem erect very much branched, leaves broadly lanceolate acute nerved rough above hairy beneath, tube of the corolla as long as the calyx, nuts smooth. *E. Bot.* t. 101; *Ed. Cat.* p. 8.

Dry, waste and uncultivated places, and among rubbish: rare in Scotland. *Fl.* June. ♃. — 1 to 1½ foot high. *Fl.* pale yellow. *Nuts* whitish-brown, highly polished; seldom more than 2 or 3 ripening in each calyx. My friend Captain Le Hunte has submitted these seeds or nuts to analysis, and obtained the following results. The stony *shells* of 60 seeds weighed upwards of 7 grains. Heated to redness, these 7 were reduced to 3, of which four tenths of a grain were pure *silica*. There was also a considerable quantity of phosphate of lime and iron.

2. L. *arvénse* L. (*Corn Gromwell,* or *Bastard Alkanet*); stem erect branched, leaves lanceolate acute hairy, calyx a little shorter than the corolla its segments patent when containing the ripe wrinkled nuts. *E. Bot.* t. 123; *Ed. Cat.* p. 8.

Corn-fields and waste ground. *Fl.* May, June. ☉. — *Corollas* white. *Calycine segments* thrice as long as the fruit.

3. L. *purpuro-cæruleum* L. (*creeping,* or *purple Gromwell*); barren stems prostrate, leaves lanceolate acute, corolla much longer than the calyx. *E. Bot.* t. 117; *Ed. Cat.* p. 8.

[1] Mr. Borrer observes that all the specimens he has seen from Hampshire have been P. *angustifólia*.

Thickets in a chalky soil, rare. Near Denbigh, in Wales; and Taunton, Somersetshire; Marychurch, Devon; Darenthwood and Greenhithe, Kent; Carsewell Bay, Glamorganshire. *Fl.* June, July. ♃.—Distinguished from the two preceding species by its large and bright blue *flowers*.

4. L. *marítimum* Lehm. (*Sea-side Gromwell*); stems procumbent branched, leaves ovate rough with callous dots, upper ones lanceolate, all fleshy and glaucous, nuts smooth. *Hook. Scot.* i. p. 68. Pulmonaria maritima *L.: E. Bot.* t. 368. Steenhammera maritima *Reich.: Ed. Cat.* p. 13.

Sea-coast among sand or loose stones, rare, and only in the North of England; Wales; plentiful in the North and West of Scotland. Between Portran and Skerries, Ireland. *Fl.* May, June. ♃. — This is quite a northern plant, extending to the arctic regions: and in habit is *sui generis*. Lower *leaves* on footstalks; upper ones sessile. *Flowers* somewhat racemed, of a beautiful purplish blue: *tube* of the *cor.* short, with minute teeth at the mouth. Whole plant very glaucous; and, when the bloom is rubbed off, rough callous points appear, which become white and almost stony in drying, when the rest of the plant turns nearly black. Mr. S. Murray has observed that the flavour of the leaves resembles that of oysters.

** *Throat of the corolla more or less closed with scales.* (Gen. 4—10.)

4. Sýmphytum *Linn.* Comfrey.

Cal. 5-cleft or 5-partite. *Cor.* enlarged upwards, its throat closed with connivent subulate scales. — Named from συμφυω, to *unite;* from its imagined healing qualities.

1. S. *officinále* L. (*common Comfrey*); stem winged above, leaves ovato-lanceolate attenuated at the base and very decurrent. *E. Bot.* t. 817; *Ed. Cat.* p. 13.

Banks of rivers and watery places, frequent. *Fl.* May, June. ♃.—2—3 ft. high, branched above. *Root-leaves* ovate, petiolated. *Racemes* in pairs, secund, drooping. *Corollas* large, yellowish-white, often purple.

2. S. *tuberósum* L. (*tuberous-rooted Comfrey*); stem simple, leaves ovato-oblong attenuated at the base, upper ones only slightly decurrent. *E. Bot.* t. 1502; *Ed. Cat.* p. 13.

Shady woods and river banks; frequent in Scotland, particularly in the Lowlands: rare in England. Durham. *Fl.* June, July. ♃.— Resembling the last, but it is very distinct. Upper *leaves*, from which the *peduncles* spring, generally in pairs, large, ovato-lanceolate, a little decurrent; whereas those of *S. officinale* are very narrow, and run down into winged appendages to the stem.

5. Borágo *Linn.* Borage.

Cal. 5-cleft. *Cor.* rotate, having its mouth closed with 5 obtuse and emarginate teeth. — Named from *cor*, the *heart*[1], and *ago*, to *bring;* thence corrupted into *Borago*.

[1] Hence the old adage — "I *Borage* always bring Courage."

1. B. *officinális* L. (*common Borage*); lower leaves obovate attenuated at the base, segments of the corolla ovate acute spreading. *E. Bot.* t. 36; *Ed. Cat.* p. 2.

Among rubbish and waste ground. *Fl.* June, July. ♂. — Whole plant very hispid. *Stem-leaves* petiolate and eared at the base; uppermost ones sessile. *Cor.* large, brilliant blue, with very prominent *stamens*. It forms an ingredient with wine, water, lemon, and sugar, in a favourite English drink called a *cool tankard*.

6. Lycópsis *Linn.* Bugloss.

Cal. 5-cleft. *Cor.* funnel-shaped, with a curved *tube*, the mouth closed with convex, connivent scales. *Nuts* concave at the base. — Named from λυκος, a *wolf*, and οψις, a *face*; from a fancied resemblance in its gaping flower to the head of a wolf.

1. L. *arvénsis* L. (*small Bugloss*); leaves lanceolate repando-denticulate very hispid, calyx erect while in flower. *E. Bot.* t. 930. Anchusa arvensis *Lehm.*: *Ed. Cat.* p. 8.

Corn fields and hedge-banks, frequent. *Fl.* June, July. ☉.—Whole plant very hispid; hairs or bristles seated on a white, callous tubercle. *Lower leaves* lengthened into a petiole; *upper ones* sessile, semiamplexicaul. *Racemes* leafy. *Flowers* small, bright blue; differing from those of *Anchusa* in the curvature of the tube.

7. Anchúsa *Linn.* Alkanet.

Cal. 5-cleft, or 5-partite. *Cor.* funnel-shaped, *tube* straight, its mouth closed with convex, connivent scales. *Nuts* concave at the base. — Named from αγχουσα, *paint*. The roots of one species, *A. tinctoria*, yield a red dye which was used in former times to stain the face.

1. A. **officinális* L. (*common Alkanet*); leaves oblongo-lanceolate, spikes crowded unilateral, bracteas ovato-lanceolate as long as the calyx. *E. Bot.* t. 662; *Ed. Cat.* p. 1.

Waste ground, rare. On the Links at Hartley Pans, Northumberland. Kilsyth and Arnbrae; and at Addington, 8 miles from Glasgow. *Fl.* June, July. ♃. — 1—2 feet high, rough and hispid. *Cor.* deep purple, the segments of the *limb* rather narrow.

2. A. **sempervírens* L. (*evergreen Alkanet*); leaves ovate, lower ones upon long stalks, peduncles axillary, flowers subcapitate accompanied by two leaves. *E. Bot.* t. 45; *Ed. Cat.* p. 1.

Waste ground, among ruins, and by road-sides, in many places both in England and Scotland. *Fl.* May, June. ♃.—*Flowers* of a beautiful blue. The shape of the *corolla* is, as Sir J. E. Smith observes, rather salver than funnel-shaped, and thus the genus is with difficulty distinguishable from *Myosotis*. Daily experience teaches us that the more natural the families, the greater is the difficulty of framing decided marks of distinction in the genera.

8. Myosótis *Linn.* Scorpion-grass.

Cal. 5-cleft. *Cor.* salver-shaped, the lobes obtuse, the mouth half closed with short rounded valves. *Nuts* perforated at the base. — Named from μυς, μυος, a *mouse*, and ους, ωτος, an *ear*; from the shape of the leaves.

(For the specific characters, synonyms, &c., I am indebted to my valued friend, W. Borrer, Esq. See ed. 3, of this Flora, for many valuable criticisms by the same hand.)

1. M. *palústris* With. (*creeping Water Scorpion-grass* or *Forget-me-not*); calyx with straight appressed bristles, when in fruit campanulate open shorter than the divergent pedicels, limb of the corolla flat longer than the tube, pubescence of the stem spreading (or wanting). *E. Bot.* t. 1973; *Hook. Scot.* i. p. 67 (*including* M. cæspitosa); *Ed. Cat.* p. 9. M. scorpioides palustris *L.*, *Sm. Fl. Brit.* v. i. p. 212.

Ditches and sides of rivers, abundant. *Fl.* during the summer months. ♃. — A very beautiful, though common plant, and considered to be the emblem of friendship in almost every part of Europe. About 1 foot high. *Flowers* among the largest of our species, bright blue with a yellow eye, and a small white ray at the base of each segment.

2. M. *répens* Don (*creeping Water Scorpion-grass*); calyx with straight appressed bristles deeply 5-cleft, when in fruit mostly connivent, shorter than the divergent pedicel, limb of the corolla flat, longer than the tube, lobes somewhat emarginate. *Don. MSS.; Reichenb. in Sturm, cum ic.; Borr. in E. Fl. Suppl.* t. 2703; *Ed. Cat.* p. 9. M. palustris β. *Hook. Fl. Scot.* i. p. 67; *Br. Fl.* ed. 3. p. 102. δ. *Mert. et Koch.* M. secunda? *Murr. N. Fl.*

Moist boggy situations in Scotland and England. *Fl.* May—Aug. ♃.

3. M. *cæspitósa* Schultz (*tufted Water Scorpion-grass*); calyx with straight appressed bristles, when in fruit campanulate open shorter than the divergent pedicels, limb of the corolla concave equalling the tube, pubescence of the stem appressed. *Reich. in Sturm cum ic. Borr. in E. Bot. Suppl.* t. 2661; *Ed. Cat.* p. 9. M. lingulata *Lehm.*

Common in watery places, both on clay and bog. *Fl.* May, June. ☉ or ♂. (♃ or ♂. *Sm.*) — *Root fibrous*, not creeping, annual or biennial. *Stem* throwing out fibres from the lower joints. *Calyx* sparingly sprinkled with appressed white bristles, cleft more deeply than in *M. palustris*, perhaps less than in *M. repens*. *Corolla* varying in size, but usually not much exceeding the calyx.

4. M. *alpéstris* Schmidt (*Rock Scorpion-grass*); calyx with straight and a few curved bristles deeply 5-cleft, when in fruit campanulate straight shorter than the slightly spreading pedicels, limb of the corolla flat longer than the tube, root-leaves on long stalks. *Lehm. Asperif.* p. 86; *Ed. Cat.* p. 9. M. rupicola

E. Bot. t. 2559. M. suaveolens *Waldst. et Kit.* M. sylvatica *β. Fries.*

Highland mountains, at a great elevation; but I am not sure that it is found except on the Breadalbane range: extending as far as Schechallion. *Fl.* July, Aug. ♃. — 4—6 inches or even a foot high, with patent *leaves*. *Lower leaves* on very long footstalks. Nothing can exceed the beauty of the large blue *flowers*, which are at first so compact as to be almost capitate, then lengthened into *racemes*. Fries and Koch consider this an alpine state of *M. sylvatica;* and, different as the plants appear in their respective localities, it is not easy to find valid marks of discrimination.

5. M. *sylvática* Hoffm. (*upright Wood Scorpion-grass*); calyx with spreading uncinate bristles deeply 5-cleft when in fruit ovate closed shorter than the divergent pedicels, limb of the corolla flat longer than the tube, root-leaves on short dilated stalks. *Lehm. Asperif.* p. 85; *Borrer in E. Bot. Suppl.* t. 2630; *Ed. Cat.* p. 9. M. scorpioides *γ. Huds.: Fl. Brit.* v. i. p. 213.

In dry shady places; chiefly in the North of England and Lowlands of Scotland: Essex and Kent. Holt, Norfolk. *Fl.* June, July. ♃. — *Flowers* very large and handsome. Various authors and cultivators pronounce this plant perennial, (Fries says "perennans," Wahlenberg "subperennans,") whilst the following species is indubitably annual, between which and the present individual I can point out no other distinctive characters more satisfactory than the somewhat more deeply divided calyx of *M. sylvatica*, its shorter and less remarkably hooked bristles, the broader and flatter corolla, and the greater size of the whole plant.

6. M. *arvénsis* Hoffm. (*Field Scorpion-grass*); calyx with spreading uncinate bristles half-5-cleft, when in fruit ovate closed shorter than the divergent pedicels, limb of the corolla concave equalling the tube. *Lehm. Asperif.* p. 90; *Borrer in E. Bot. Suppl.* t. 2629; *Ed. Cat.* p. 9. M. intermedia *Link.* M. scorpioides *α.* arvensis, *Fl. Brit.* p. 312.

Very common in cultivated ground, hedge-banks, groves, &c. *Fl.* June —Aug. ☉. — Although Linnæus included other plants, now regarded as species, in his ideas of *M. scorpioides* and *arvensis*, and even preserved as such in his herbarium a specimen of the next species, yet, as it is evident from *Fl. Suec.* that this is what he held to be the type of the *var.*, I think it best to follow those botanists who have named it *M. arvensis*. Fries asserts that every Swedish botanist knows it to be the "ipsissimam *M. arvensem* Linn." It is, moreover, the only one usually found in cultivated fields. This species and *M. sylvatica* are inextricably confounded in *E. Fl.*

7. M. *collína* Hoffm. (*early Field Scorpion-grass*); calyx with spreading uncinate bristles, when in fruit ventricose open equalling the diverging pedicels, limb of the corolla concave shorter than the tube (raceme usually with one distant flower at the base). *Borr. in E. Bot. Suppl.* sub fol. 2629; *Ed. Cat.* p. 9. M. arvensis *Link: E. Bot.* t. 2558. M. arvensis *γ. Wahl. Fl. Suec.* v. i. p. 120 (excl. syn.). M. hispida "*Schlecht.*"

On sandy banks, wall-tops, and other very dry places. *Fl.* April, May ; usually quite dried up by midsummer. ⊙. — "May at all times be distinguished from *M. versicolor* at a glance, by its brilliant blue flowers, which do not expand till by the uncurling of the raceme they are brought into a perpendicular position, but continue open till the next 2 or 3 above them are expanded. Colour an unchangeable blue." *J. E. Bowman in litt.*

8. M. *versícolor* Lehm. (*yellow and blue Scorpion-grass*); calyx with spreading uncinate bristles, when in fruit oblong (closed) longer than the almost erect pedicels, limb of the corolla concave shorter than the exserted tube. *E. Bot.* t. 2558 (ad calc.); *Ed. Cat.* p. 9. M. arvensis γ. versicolor *Pers.* M. arvensis β. minor *Roth.* M. scorpioides collina *Ehrh. Pl. Exsicc.* n. 51 (according to Smith's copy). M. scorpioides β. *Huds.*: *E. Bot.* t. 480 (fig. sinist.). M. scorpioides γ. *Linn.*

Common in wet meadows, &c., as well as dry places ; hence varying much in height. *Fl.* April—June. ⊙. — *M. versicolor* is distinguishable at once from *M. stricta* (which is *M. versicolor* β. Lehm.) by its stalked racemes. In *M. stricta* the flowers begin among the leaves, sometimes from the very base of the stem ; I believe, too, that none of them are yellow, and that they have a much shorter tube. "In *M. versicolor* the flowers are first yellow, then they acquire a tinge of blue, and finally become quite blue as the corolla shrivels. They also expand on the curled portion of the raceme, while they are inverted, and by the time they become erect are shrivelled." *J. E. Bowman in litt.*

(*Echinospermum Lappula* has been found by the *Rev. E. A. Holmes*, at Southwold, Suffolk, in August, 1839; but I fear it has been introduced, probably with corn-seed, from the continent.)

9. Asperúgo *Linn.* Madwort.

Cal. 5-cleft, unequal, with alternate smaller teeth. *Cor.* (short) funnel-shaped, its mouth closed with convex connivent scales. *Nuts* covered by the folded and compressed calyx. — Named from *asper*, *rough* ; eminently applicable to this, even among the group of *Asperifoliæ*.

1. A. *procúmbens* L. (*German Madwort*). *E. Bot.* t. 36 ; *Ed. Cat.* p. 2.

Waste places in the North: Durham. About Dunbar, and near Edinburgh. Purfleet. *Fl.* June, July. ⊙. — *Stems* procumbent, angular, rough with short hooked prickles. *Leaves* oblongo-lanceolate, solitary or opposite, or 3—4 nearly from the same point of the stem ; lower ones petiolate, all rough and slightly hispid. *Flowers* blue, axillary, solitary. *Peduncles* short, at first erect, then curved downward. *Cal.* small, much enlarged in fruit.

10. Cynoglóssum *Linn.* Hound's-tongue.

Cal. 5-cleft. *Cor.* (short) funnel-shaped, its mouth closed with convex, connivent scales. *Nuts* depressed, fixed to the

style or central column.—Named from κυων, a *dog*, and γλωσσα, a *tongue;* from the shape and texture of the leaf.

1. C. *officinále* L. (*common Hound's-tongue*); stem-leaves lanceolate attenuate at the base sessile downy, stamens shorter than the corolla. *E. Bot.* t. 921; *Ed. Cat.* p. 4.

Waste grounds and by road-sides; less frequent in Scotland. *Fl.* June, July. ♂.—Whole plant soft to the touch, dull-green, with a fetid smell; often 2 feet high. Lower *leaves* on long footstalks. *Flowers* purplish-red. *Fruit* very rough.

2. C. *sylvaticum* Hænke (*green-leaved Hound's-tongue*); stem-leaves lanceolate broad at the base shining sessile slightly hairy and scabrous especially beneath, stamens shorter than the corolla. *E. Bot.* t. 1642. C. montanum, *Ed. Cat.* p. 4.

Shady places, by road-sides, &c., in the middle and East of England, rare. Carse of Gowrie in Scotland. Near Balbriggan, Ireland. *Fl.* June, July. ♂.—Distinguished readily from the last by its more or less shining and brighter-coloured *leaves*, free from pubescence, and their different figure. *Root-leaves* ovato-lanceolate, on very long footstalks.

Ord. LVIII. SOLANEÆ *Juss.*

Calyx 5- rarely 4-partite, persistent. *Corolla* monopetalous, hypogynous, its *limb* 5-cleft, equal or somewhat unequal, deciduous, with a plicate æstivation. *Stamens* inserted into the corolla, alternate with its segments and equalling them in number, 1 sometimes abortive. *Ovary* 1- 2- or 4-celled, many-seeded. *Style* 1. *Stigma* obtuse, rarely lobed. *Pericarp* 1- 2- or 4-celled; either a *capsule* with a parallel double dissepiment, or a *berry*, with the receptacles united to the dissepiments. *Seeds* numerous. *Embryo* included in a fleshy *albumen*, more or less curved, often out of the axis. *Radicle* opposite the *hilum*.—Herbs *or* Shrubs. Leaves *alternate, without stipules, sometimes opposite, beneath the flowers.* Br.—Linnæus called this family *Luridæ*, and fancied that their lurid appearance indicated the dangerous properties common to many of them. They are acrid and narcotic, as the *Deadly Night-Shade, Mandragora, Henbane, Thorn-apple, Tobacco*, &c.: whilst the root of one, when cooked, affords a most important article of food, the *Potato;* and the fruits of the *Love-apple, Winter-cherry*, and *Capsicum* are condiments.

1. Datúra *Linn.* Thorn-apple.

Cal. tubular, deciduous. *Cor.* funnel-shaped, plaited. *Stigma* 2-lobed. *Capsule* half-4-celled, 4-valved.—Named from its Arabic appellation *Tatórah* (Forskal). In some parts of the East Indies it is called *Dáturo.*

1. D.* *Stramónium* L. (*common Thorn-apple*); herbaceous, leaves ovate angulato-sinuate glabrous, fruit ovate erect clothed

with numerous nearly equal spines. *E. Bot.* t. 1288; *Ed. Cat.* p. 4.

Waste ground in England. *Fl.* July. ☉. — The narcotic qualities of this plant are well known. The *capsule* has 4 cells below, divided by 4 dissepiments of which 2 only reach the top; hence the summit is 2-celled.

2. Hyoscýamus *Linn.* Henbane.

Cal. tubular, 5-cleft. *Cor.* funnel-shaped, oblique. *Caps.* 2-celled, opening with a lid. — Named from ὑς, ὑος, a *hog*, and κυαμος, a *bean*. Hogs are said to eat the fruit, which bears some resemblance to a bean. The seeds do not prove injurious, though the plant be esteemed poisonous.

1. H. *níger* L. (*common Henbane*); leaves amplexicaul sinuated, flowers nearly sessile. *E. Bot.* t. 591; *Ed. Cat.* p. 7.

Waste places, especially in a chalky soil; often near towns and villages. *Fl.* July. ☉ ♂. — *Stem* much branched, rounded. Whole plant covered with unctuous fetid hairs. *Leaves* subovate. *Calyx* veined, as is the large dingy yellow *corolla*, with purplish-brown lines; its tubular part swells and firmly encloses the *capsule*, of which the upper part falls off like a lid. *Plant* highly narcotic.

3. Solánum *Linn.* Nightshade.

Cal. of 5—10 segments. *Cor.* rotate. *Anthers* opening with 2 pores at the extremity. *Berry* roundish, 2- or more celled. — Name of doubtful origin. According to some from *solamen*, on account of the *comfort* or *solace* derived from some species as a medicine.

1. S. *Dulcamára* L. (*woody Nightshade* or *Bittersweet*); stem without thorns shrubby climbing, leaves cordate, upper ones hastate, corymbs drooping inserted opposite the leaves. *E. Bot.* t. 565; *Ed. Cat.* p. 13.

Moist hedges and thickets: not common in Scotland. About Dublin. *Fl.* June, July. ♄. — *Flowers* purple, with 2 green tubercles at the base of each segment. *Anthers* large, yellow, united in a pyramidal or cone-shaped figure. *Berries* ovate, red. — This has been much employed in medicine, especially in rustic practice. A hairy *var.* is mentioned by Ray, as growing on the southern coast of England.

2. S. *nígrum* L. (*common* or *Garden Nightshade*); stem without thorns herbaceous, leaves ovate bluntly toothed and waved, umbels lateral drooping. *E. Bot.* t. 566; *Ed. Cat.* p. 13.

Waste places, fields, &c., frequent. *Fl.* June—Sept. ☉. — *Flowers* white. *Berries* globose, black; sometimes green in Sussex and at Walthamstow: *Mr. Borrer.*

4. A'tropa *Linn.* Dwale.

Cal. 5-partite. *Cor.* campanulate, the lobes equal. *Stam.* distant. *Berry* of 2 cells. — Named from *Atropos*, one of the

Fates, in allusion to its deadly quality; whence also its English name *dwale* (*deuil*, Fr.; *dolor*, Lat.).

1. A. *Belladónna* L. (*common Dwale* or *deadly Nightshade*); stem herbaceous, leaves ovate undivided, flowers axillary on short peduncles. *E. Bot.* t. 592; *Ed. Cat.* p. 2.

Hedges and waste places; especially among ruins and near towns. *Fl.* June. ♃. — 3 feet and more high. *Leaves* entire, some very large, but placed in pairs of unequal sizes. *Flowers* drooping, lurid purple. *Berries* shining, black, highly injurious when taken internally. Their effects are said to be best counteracted by drinking plentifully of vinegar.

Ord. LIX. OROBANCHEÆ *Vent.*

Calyx variously divided, persistent. *Corolla* irregular, persistent, with an imbricated æstivation. *Stamens* 4, didynamous. *Anthers* 2-celled, the cells distinct, parallel, often mucronate. *Ovary* in a fleshy disk, 1-celled with 2—4 parietal, many-seeded receptacles. *Style* 1. *Stigma* 2-lobed. *Capsule* 2-valved. *Seeds* very minute. *Embryo* at the apex of a fleshy *albumen*. — Herbaceous, *dingy-coloured, somewhat succulent, leafless plants, glandular and scaly, generally parasitical on the roots of plants.*

1. Orobánche *Linn.* Broom-rape.

Cal. of 2 lateral, often combined and bifid segments, bracteated. *Cor.* ringent, 4—5-cleft. A *gland* at the base of the *germen* beneath. *Stigma* capitate. *Capsule* 2-valved, bearing numerous minute *seeds*, on parietal longitudinal *receptacles*. — *Leafless, brown or purplish, herbaceous, scaly* plants, *often attached to the roots of other plants*. — Named from οροβος, a *leguminose*, or *pea-like plant*, and αγχειν, to *strangle*; the roots being often attached to plants of that description, are supposed to injure them.

* *Bracteas solitary under each flower.*

1. O. *májor* L. (*greater Broom-rape*); stem simple, corolla tubular its upper lip undivided, lower one in 3 nearly equal segments, the lateral ones acute the terminal one larger obtuse, stamens glabrous, style downy. *E. Bot.* t. 421; *Ed. Cat.* p. 9.

On the roots of Broom and Furze and other leguminose plants, not unfrequent. *Fl.* June, July. ♃. — 1—1½ ft. high, leafless. Whole plant dingy purplish-brown, pubescent. *Stem* swelling at the base and very scaly: scales more distant upwards and becoming *bracteas* among the flowers; one at the base of each. *Flowers* in a long *spike*. *Calyx* of 2 lateral, lanceolate *leaves*. *Cor.* large.

2. O. *caryophyllácea* Sm. (*clove-scented Broom-rape*); stem simple, tube of the corolla inflated especially above, limb

spreading 2-lipped, upper lip broad emarginate, lower with 3 lobes, all the segments obtuse wavy, stamens hairy especially at the base within, style pubescent, stigma dark purple. *G. E. Smith, Pl. of Kent*, p. 34. t. 3. f. 4; *Hook. in E. Bot. Suppl.* t. 2639; *Ed. Cat.* p. 9. O. Galii *Dub.*

On the roots of *Galium Mollugo*, *Rubus fruticosus*, &c., in South Kent. *Fl.* July. ♃.

3. O. *elátior* Sutt. (*tall Broom-rape*); stem simple, corolla funnel-shaped, lower lip with acute nearly equal segments, stamens downy, style glabrous. *Sm.: Sutt. in Linn. Tr.* v. iv. p. 178. t. 17; *E. Bot.* t. 568; *Ed. Cat.* p. 9.

Clover-fields and bushy places in a light gravelly soil, in several parts of England. *Fl.* July, Aug. ♃. — Taller and yellower than the 2 preceding. *Flowers* with their upper lip lobed.

4. O. *minor* Sm. (*lesser Broom-rape*); stem simple, corolla nearly cylindrical, lower lip with curled segments, the middle one largest and lobed, stamens fringed, style glabrous. *E. Bot.* t. 422; *Ed. Cat.* p. 9.

Clover-fields, abundant in Norfolk, Kent, Surrey, and Brecknockshire. Upon Ivy, in many parts of Ireland. *Fl.* July, Aug. ⊙? — Much smaller than any of the preceding and more slender. *Cor.* not at all tumid, upper lip unequally notched.

(*Mr. Babington*, in his *Flor. Sarn.*, and in *E. Bot. Suppl.* t. 2859, and the *Edinb. Cat.* p. 9., have given the *O. barbata* of Poiret as a distinct British species found growing on *Hedera Helix* in Guernsey; at Barmouth; and likewise in Ireland. But the *A. barbata* of Poiret is referred, by Steudel and other writers, to *O. minor* of English authors; from which it does not seem to differ, judging from the figure quoted by Mr. Babington in *Reichenb. Ic. Bot.* f. 881, 2, and even from his own figure in *E. Bot.* If the differences in this plant be constant and sufficient for specific separation, which is very doubtful, the whole of our British species will need a careful revision with the aid of living specimens, and then, probably, their number would not fall far short of what is given by the German authors. Such an investigation, indeed, whatever may be the result in regard to the increase of actual species, is much needed, and could not, in careful hands, fail to clear up many difficulties in this singular and I suspect variable genus.)

5. O. *rúbra* Sm. (*red Broom-rape*); stem simple, corolla tubular its upper lip 2-lobed, lower one in 2 equal obtuse lobes, stamens partially glanduloso-pilose, style glabrous. *E. Bot.* t. 1786 (bad); *Hook. in Fl. Lond. N. S.* t. 105; *Ed. Cat.* p. 9.

Frequent upon basalt and trap rocks in the Hebrides and adjacent shores of the mainland. Near Kirkaldy. Cave hill near Belfast, Ireland. *Fl.* July. ♃.

** *Bracteas 3 under each flower.*

6. O. *cærúlea* Vill. (*purple Broom-rape*); stem simple, bracteas 3, upper lip of the corolla cloven and notched, lower in

3 equal entire segments, style downy. *E. Bot.* t. 423; *Ed. Cat.* p. 9.

Grassy pastures near the sea; rare: principally found in Norfolk. *Fl.* July. ♃.—More inclining to purplish-blue than any of the preceding.

7. O. *ramósa* L. (*branched Broom-rape*); stem branched, bracteas 3, upper lip of the corolla deeply cloven, lower equally 3-lobed, segments all rounded and entire. *E. Bot.* t. 184; *Ed. Cat.* p. 9.

On hemp-roots, chiefly in Norfolk and Suffolk. Jersey. Sark. *Fl.* Aug. Sept. ⊙.

2. Lathréa *Linn.* Tooth-wort.

Cal. campanulate. *Cor.* tubular, 2-lipped: the upper *lip* concave. A depressed *gland* is at the base of the *germen*. *Capsule* 2-valved, 1-celled, having two spongy *receptacles* in the middle of each valve.—Plants *leafless, coloured.*—Name: λαθραιος, *hid* or *concealed;* the plant growing much concealed by the earth or dead leaves.

1. L. *squamária* L. (*greater Tooth-wort*); stem simple, flowers pendulous in one-sided racemes, lower lip of the corolla 3-cleft. *E. Bot.* t. 50; *Ed. Cat.* p. 7.

Woods and coppices, apparently parasitic on the roots of Hasels, Elms, and other trees, in various parts of England, Scotland, and Ireland. *Fl.* April, May. ♃.—Branching from the very base. Whole plant succulent, with many fleshy, tooth-like scales. *Bracteas* broadly ovate or lanceolate. *Flowers* purplish.—See a valuable paper on the structure and growth of this plant, by the late J. E. Bowman, Esq., in *Linn. Trans.* vol. xvi. p. 2., accompanied by a beautiful plate.

Ord. LX. SCROPHULARINEÆ *Juss.*

(including Melampyraceæ *Rich.*)

Calyx 4—5-lobed, persistent. *Corolla* monopetalous, generally irregular, deciduous, with an imbricated æstivation. *Stamens* 4, didynamous, rarely equal, sometimes 2 or 5. *Style* 1. *Stigma* 2-lobed, rarely undivided. *Capsule* (very seldom a *Berry*) 2-celled, 2—4 valved, or opening by pores; the valves entire or bifid, with a dissepiment either double from the inflexed margins of the valves, or simple, parallel and entire, or opposite and bipartite. *Receptacle* of the seeds central, united to the dissepiment, or eventually separating. *Seeds* few or numerous. *Embryo* straight, enclosed in the axis of a fleshy *albumen.*—Herbs, *sometimes* Shrubs, *usually with opposite leaves.* Br. In this Order are many powerfully medicinal plants; as the *Hedge-Hyssop, Gratiola;* the *Foxglove,* &c.

A. *Stamens* 2. (Gen. 1.)

1. VERÓNICA *Linn.* Speedwell.

Cor. 4-cleft, rotate, lower segment narrower. *Stam.* 2. *Caps.* 2-celled. — Name of doubtful origin.

* *Spikes or racemes terminal.*[1] (*Root perennial.*)

1. V. *spicáta* L. (*spiked Speedwell*); raceme spicate, leaves oblong obtuse serrated pubescent, the lower ones broader ovate or obovate and stalked, stem ascending branching only at the very base, capsule obcordate hairy with a long style. *E. Bot.* t. 2; *Ed. Cat.* p. 15. — β. stem-leaves broader approaching to elliptical. V. hybrida *L.*: *E. Bot.* t. 673; *Ed. Cat.* p. 15.

Rare. In dry chalky pastures about Newmarket and Bury. — β. in Lancashire and in Wales. *Fl.* July, Aug. ♃.

2. V. *serpyllifólia* L. (*Thyme-leaved Speedwell*); raceme somewhat spiked many-flowered, leaves broadly ovate or elliptical very obtuse nearly entire glabrous, capsules inversely reniform as long as the style. *E. Bot.* t. 1075; *Ed. Cat.* p. 15. — β. *alpina*; stems prostrate often rooting, racemes short. *Ed. Cat.* p. 15. V. humifusa *Dicks.*

Pastures and road-sides, abundant. On high mountains. *Fl.* May —July. ♃. — The *var.* β. is a singular and very beautiful one, and is often gathered and mistaken for *V. alpina*. In both, the *stems*, and sometimes the *leaves*, are more or less pubescent.

3. V. *alpína* L. (*alpine Speedwell*); racemes corymbose few-flowered, leaves elliptic-ovate serrated, calyx and bracteas ciliated, capsule obovate notched tipped with the very short style. *E. Bot.* t. 484; *Ed. Cat.* p. 14.

Near the summits of the Highland mountains, but rare. *Fl.* July, Aug. ♃. — About 4 inches high, turning black when dry. Best distinguished from all the varieties of *V. serpyllifolia* by its more upright growth; larger, more acute, and more decidedly serrated *leaves*; by the fewer, more dense, brighter blue *flowers*, which are more hairy about the *calyx* and *bracteas*; and by the obovate *capsule* with its very short *style*.

4. V. *saxátilis* L. (*blue Rock Speedwell*); raceme lax few-flowered corymbose, leaves elliptical subserrate, stems spreading, capsule ovate its valves bifid. *E. Bot.* t. 1027; *Ed. Cat.* p. 15.

Growing on perpendicular exposed rocks in Scotland, rare. On the Breadalbane and Clova mountains. *Fl.* July. ♃. — *Stems* slender, procumbent, woody, much branched. *Leaves* glabrous, bright green, when dry almost black, but semipellucid, thin and distinctly veiny. *Flowers* large, of a most brilliant blue, in *corymbs*.

5. V. *fruticulósa* L. (*flesh-coloured Speedwell*); raceme many-

[1] V. *arvensis*, *triphyllos*, and *verna*, are placed in the third division, on account of their *annual roots*; although their inflorescence may more strictly be considered as *spicate* or *racemose*, than as consisting of solitary and axillary flowers.

flowered subspicate, leaves elliptic-lanceolate subserrated coriaceous, stems ascending woody branched at the base, capsule ovate its valves bifid. *E. Bot.* t. 1028; *Ed. Cat.* p. 14.

On Ben Cruachan, Argyleshire: *Dr. Walker.* Upon Ben Lawers: *R. Brown, Esq. Fl.* July. ♃. — I am not aware that any botanist, except those just mentioned, has ever detected this plant truly wild in the British dominions: nor have I been able to see a native specimen.

** *Racemes axillary.* (*Root perennial.*)

6. V. *scutellàta* L. (*Marsh Speedwell*); racemes alternate, pedicels divaricated reflexed in fruit, leaves linear somewhat toothed, stem nearly erect. *E. Bot.* t. 782; *Ed. Cat.* p. 15.

Wet places and sides of ditches. *Fl.* July, Aug. ♃. — *Racemes* nearly opposite. *Capsule* of 2 flattened, orbicular, membranous lobes. *Flowers* flesh-coloured with darker bluish veins.

7. V. *Anagállis* L. (*Water Speedwell*); racemes opposite, leaves lanceolate serrated, stem erect. *E. Bot.* t. 781; *Ed. Cat.* p. 14.

Ditches and watery places; less frequent in Scotland than in England. *Fl.* July, Aug. ♃. — Intermediate in appearance between *V. scutell.* and *V. Beccab.*, yet abundantly distinct from both. *Stems* succulent, a foot or more high. *Leaves* varying somewhat in width. *Racemes* long, many-flowered. *Pedicels* short, never reflexed. *Flowers* bluish or inclining to purple.

8. V. *Beccabúnga* L. (*Brooklime*); racemes opposite, leaves elliptical obtuse subserrated glabrous, stem procumbent at the base and rooting. *E. Bot.* t. 635; *Ed. Cat.* p. 14.

Ditches and water-courses, frequent. *Fl.* Summer months. ♃. — Whole plant glabrous and very succulent. *Racemes* of many bright blue *flowers.*

9. V. *officinális* L. (*common Speedwell*); racemes spicate, leaves broadly ovate serrated rough with pubescence, stem very downy procumbent, capsule obovate deeply notched. *E. Bot.* t. 765; *Ed. Cat.* p. 15. — β. nearly glabrous. *E. Fl.* v. i. p. 22. β. Allionii *Vill.*: *Ed. Cat.* p. 15. V. hirsuta *Hopk.*: *Ed. Cat.* p. 15. — γ. leaves ovato-lanceolate, capsule obcordate entire abortive. V. hirsuta *Hopk. Fl. Glott.* p. 9.; *Hook. in E. Bot. Suppl.* t. 2673. V. setigera *D. Don.*

Abundant in woods and pastures, especially in dry situations. — β. on mountains in Scotland and Ireland. — γ. dry heaths in Ayrshire: *Mr. Js. Smith. Fl.* May—July. ♃. — A very variable plant, especially in size. *Leaves* astringent and bitter; hence sometimes used medicinally, and made into tea.

10. V. *montána* L. (*Mountain Speedwell*); racemes lax few-flowered, leaves cordato-ovate petiolate serrated, stem hairy all round, capsule orbicular two-lobed membranous much larger than the calyx. *E. Bot.* t. 766; *Ed. Cat.* p. 15.

Moist woods, not unfrequent. *Fl.* May, June. ♃. — *Stem* a foot and more long, weak, trailing. *Leaves* large, on stalks about equal to them

in length. *Capsules* large, quite flat, and resembling those of a *Biscutella*, veiny, their edges denticulate and slightly ciliated.

11. V. *Chamædrys* L. (*Germander Speedwell*); racemes elongated many-flowered, leaves cordato-ovate sessile inciso-serrate, stem bifariously hairy, capsule obcordate shorter than the calyx. *E. Bot.* t. 623; *Ed. Cat.* p. 14.

Woods, pastures, and hedge-banks, frequent. *Fl.* May, June. ♃.—*Stem* procumbent, as in the last species, having two opposite hairy lines, and these lines taking different sides above and below each pair of leaves, or decussate. *Leaves* wrinkled, deeply cut in a subalpine *variety* found by Mr. Wilson in North Wales. *Flowers* large, numerous, very bright blue, greeting us at an early season of the year, and hence rendering the plant a general favourite. In a *var.* found by *Prof. Henslow*, the blossoms are small and chocolate-coloured.

*** *Flowers axillary, solitary.* (*Root annual.*)

12. V. *hederifólia* L. (*Ivy-leaved Speedwell*); leaves all petiolate cordate with 5—7 large teeth or lobes, segments of the calyx cordate ciliated, capsule of two turgid lobes, stem procumbent. *E. Bot.* t. 784; *Ed. Cat.* p. 14.

Fields and hedge-banks, common. *Fl.* April—June. ☉.—*Stem* weak. *Leaves* rather fleshy, slightly hairy, the upper young leaves alone sessile, or nearly so; the terminal tooth or lobe the largest. *Peduncles* longer than the leaves, recurved when bearing fruit. *Caps.* of two rounded glabrous lobes, each lobe having 2 large, black, transversely wrinkled, oval, gibbous *seeds*, which are hollowed on the under side.

13. V. *agréstis* L. (*green procumbent Field Speedwell*); leaves all petiolate cordato-ovate inciso-serrate as long as the flower-stalks, segments of the calyx oblong-obtuse, stem procumbent, capsule of 2 turgid keeled lobes, cells about 6-seeded. *Borr. in E. Bot. Suppl.* t. 2603; *Ed. Cat.* p. 14.

Fields and waste places, abundant. *Fl.* April—Sept. ☉.—Prostrate. *Stems* 3—4 inches long, slightly hairy. *Fruit* of two round tumid lobes, much smaller than the calyx. *Seeds* large, cupped.

14. V. *polita* Fries (*grey procumbent Field Speedwell*); leaves all petiolate cordato-ovate inciso-serrate shorter than the flower-stalks, segments of the calyx ovate acute, stem procumbent, capsule of 2 turgid lobes, cells many-seeded. *Reich. Iconogr.* v. iii. p. 45. t. 246; *Ed. Cat.* p. 15. V. agrestis *E. Bot.* t. 783.

Cultivated fields and waste places, often with the preceding. *Fl.* throughout the summer. ☉.—Mr. Borrer has well illustrated this and the foregoing *V. agrestis*, in the Supplement to *E. Bot.* t. 2603. These two species, and the *V. opaca* of Fries (with spathulate segments to the calyx), border very closely upon each other, and are probably often confounded by Botanists.

*15. V. *Buxbaúmii* Ten. (*Buxbaum's Speedwell*); leaves all petiolate cordato-ovate inciso-serrate shorter than the flower-stalks, segments of the calyx lanceolate acute, stem procumbent, capsule obcordate of two turgid divaricated lobes which are

compressed upwards and sharply keeled, cells about 8-seeded. *Borr. in E. Bot. Suppl.* t. 2769; *Hook. Br. Fl.* ed. 3. p. 8; *Ed. Cat.* p. 14. V. Persica *Stev.* V. filiformis *Johnst. Fl. of Berw.* p. 225, with fig. (*not of Vahl.*); *Hook. Br. Fl.* ed. 1. p. 6. V. agrestis β. *Hook. Brit. Fl.* ed. 2. p. 6.

Fields and cultivated places. Shrubbery at Whiterig, Berwickshire. Clover-field at Chalk-hole, near Margate. Plentiful among turneps in a field adjoining the Bird-in-hand Inn, Burford, Oxfordshire. Near Newcastle, along with *V. polita* and *V. agrestis*. Syderstrand, Norfolk, under a sunny wall: *Miss Anna Gurney*. Near Dunfermline: *Dr. Dewar*, Aug. 1836. Near Glasgow. *Fl.* Spring to autumn. ⊙.—Our acute friend Mr. Borrer grounds the distinguishing marks of this plant, as separating it from *V. agrestis* and *V. polita*, upon its larger size, and great hairiness, the divaricated lobes of the capsule, which are compressed upwards and sharply carinated, and on the larger corolla, rivalling in size and beauty that of *V. Chamædrys*. Mr. Borrer has, in the *Engl. Bot.*, by mistake, made it appear that we had, in the 2d ed. of this work, referred this plant to a variety of "*arvensis*," instead of *polita* (*agrestis* of *Eng. Bot.*).

16. V. *arvénsis* L. (*Wall Speedwell*); leaves cordato-ovate serrated the lower ones petiolate, the upper or bracteas sessile lanceolate longer than the flowers which are subspicate, stems ascending. *E. Bot.* t. 734; *Ed. Cat.* p. 14.

Fields and walls, plentiful. *Fl.* in the spring months, and in early summer. ⊙.—Very different from the last three, especially in its inflorescence, which, if the upper leaves be considered bracteas, as they really are (for they differ both in size and shape from the cauline ones), is truly racemose or subspicate. The same may be said of the two next species, and of some continental ones, especially *V. acinifolia*.

17. V. *triphýllos* L. (*blunt-fingered Speedwell*); leaves broadly ovate incised, lowermost ones petiolate, upper or bracteas sessile digitate, the segments obtuse, flowers sub-racemose, the pedicels longer than the bracteas or the calyx. *E. Bot.* t. 26; *Ed. Cat.* p. 15.

Rare; in sandy fields, about Bury, and on the confines of Norfolk and Suffolk. *Fl.* April. ⊙.—3—4 inches high, with spreading branches. *Flowers* a very deep blue, the lowermost often on very long pedicels.

18. V. *vérna* L. (*vernal Speedwell*); leaves inciso-pinnatifid, the upper ones or bracteas lanceolate entire, flowers subracemose, pedicels shorter than the calyx. *E. Bot.* t. 25; *Ed. Cat.* p. 15.

Very rare. About Bury and Thetford, Suffolk. *Fl.* Apr. ⊙.—A very small, upright, scarcely branching plant, allied to *V. arvensis*.

B. *Stamens* 4, *didynamous.* (Gen. 2—12.)

2. Bártsia *Linn.* Bartsia.

Cal. tubular, mostly coloured, 4-cleft. *Cor.* ringent with a contracted orifice; upper *lip* arched, entire; lower one in 3

equal reflexed lobes. *Anthers* mostly hairy. *Caps.* ovate, compressed, with 2 cells and many angular *seeds.*—Named in honour of *John Bartsch*, a Prussian botanist, and friend of Linnæus, who died at Surinam.

1. B. *alpína* L. (*alpine Bartsia*); leaves opposite cordato-ovate obtusely serrated, flowers in a terminal short leafy spike, anthers hairy. *E. Bot.* t. 361; *Ed. Cat.* p. 2.

Rocky alpine pastures; rare. Near Orton, Westmoreland. Middleton Teesdale, on the Yorkshire and Durham sides of the river. On Malghyrdhy and Ben Lawers, in Breadalbane; Scotland. *Fl.* June, July. ♃.—*Stem* about a span high, simple. Upper *leaves* or *bracteas* often tinged with purple. *Flowers* large, deep purplish-blue, downy; *lips* of equal length.

2. B. *viscósa* L. (*yellow viscid Bartsia*); leaves lanceolate inciso-serrate, upper ones alternate, flowers solitary axillary distant, lower lip large with two tubercles, anthers hairy. *E. Bot.* t. 1045; *Ed. Cat.* p. 2.

Pastures, in many places in the West of England and Wales, and South-west of Scotland and South of Ireland. Jersey. *Fl.* Aug. ☉.—Habit of the last. *Flowers* yellow, handsome.

3. B. *Odontítes* Huds. (*red Bartsia*); leaves lanceolate serrated, upper ones (or bracteas) alternate, flowers in unilateral racemes, anthers nearly glabrous, stem branched. *E. Bot.* t. 1415; *Ed. Cat.* p. 2.

Corn-fields and waste places, frequent. *Fl.* July, Aug. ☉.—*Racemes* many, long, erect. *Flowers* reddish-purple.

3. Euphrásia *Linn.* Eye-bright.

Cal. tubular, 4-cleft. Upper *lip* of the *Cor.* divided; lower one of 3 nearly equal lobes. Cells of the *anthers* spurred at the base. *Caps.* ovato-oblong, 2-celled. *Seeds* striated.—Name from *Euphrosyne*, expressive of joy and pleasure, in allusion to its properties.

1. E. *officinális* L. (*common Eye-bright*); leaves ovate deeply toothed, lobes of the lower lip emarginate. *E. Bot.* t. 1416; *Ed. Cat.* p. 5.

Pastures in the plains and on the mountains, abundant. *Fl.* July. ☉.—Varying from one inch, with often only a single flower, to 6 and 8 inches, in the Highland pastures, where it becomes very much branched. *Flowers* axillary, but crowded at the extremities of its branches, white or reddish, streaked with purple. The plant is still much used in rustic practice as a remedy for diseases of the eye. Milton represents the Archangel Michael as employing it to remove the film from the eyes of our first parent, occasioned by eating the forbidden fruit:—

> "Then purged with *Euphrasy* and *Rue*
> The visual nerve, for he had much to see."

4. Rhinánthus *Linn.* Yellow-rattle.

Cal. inflated, 4-toothed. Upper *lip* of the *Cor.* compressed laterally; lower one plane, 3-lobed. *Caps.* of 2 cells, obtuse, compressed, with many imbricated, flat and margined *seeds.* — Named from ῥιν, a *nose*, and ανθος, a *flower*; in allusion to the beaked upper lip of the corolla, which is very remarkable in the *R. Elephas.*

1. R. *Crista-Gálli* L. (*common Yellow-rattle*); leaves lanceolate serrated, flowers in lax spikes, calyx glabrous, style included, seeds with a broad membranous border. *E. Bot.* t. 657; *Ed. Cat.* p. 11.

Meadows and pastures, abundant. *Fl.* June. ⊙.—1—2 ft. high, glabrous, often much branched and more or less spotted with purple. *Leaves* veiny. *Flowers* axillary in the upper leaves or *bracteas*, and hence loosely spiked. When the fruit is ripe, the *seeds* rattle in the husky capsule, and indicate to the Swedish peasantry the season for gathering in their hay. In England, Mr. Curtis well observes, hay-making begins when this plant is in full flower.

How far the following may be considered as really distinct I cannot say, as I have not had the opportunity of studying the living plant.

2. R. *májor* Ehrh. (*large bushy Yellow-rattle*); leaves linear lanceolate, upper ones especially acuminated, flowers in crowded spikes, calyx glabrous, style a little exserted, seeds with a narrow membranous border. *E. Bot. Suppl.* t. 2737; *Ed. Cat.* p. 11. R. Crista-Galli β. *L.*

Corn-fields in the North of England. *Fl.* July, 2 or 3 weeks later than the preceding species. ⊙.—Mr. Backhouse observes that the present plant has denser and more bushy *spikes*, and yellowish *bracteas*, each terminated by an elongated green point. The segments of the upper lip of the *corolla* are wedge-shaped, purple; the *germen* is narrower, and more tumid; the *style* prominent; the *nectary* heart-shaped, more spreading and greenish. The *seeds* are thick at the edge, and not quite destitute of a membranous margin. It is frequent upon the Continent.

5. Melampýrum *Linn.* Cow-wheat.

Cal. tubular. Upper *lip* of the *Cor.* laterally compressed, turned back at the margin; lower *lip* trifid. *Caps.* oblong, 2-celled, oblique, opening on one side. *Cells* 1-seeded. *Seeds* gibbous at the base. — Named from μελας, *black*, and πυρος, *wheat.* Its seeds resemble grains of wheat, and they are said, when mixed with flour, to make the bread black.

1. M. *cristátum* L. (*crested Cow-wheat*); spikes densely imbricated 4-sided, bracteas cordate acuminated finely ciliato-dentate. *E. Bot.* t. 41; *Ed. Cat.* p. 8.

Woods, thickets, and sometimes in corn-fields, chiefly in Norfolk, Cambridgeshire, Bedfordshire, and Huntingdonshire. *Fl.* July. ⊙. — A beautiful plant, as is the following. *Leaves* lanceolate, acuminate,

entire. *Bracteas* rose-coloured at the base. *Flowers* yellow, purple within the upper lip.

2. M. *arvénse* L. (*purple Cow-wheat*); spikes oblong lax, bracteas lanceolate pinnatifid with setaceous segments, teeth of the calyx much longer than the tube, lips of the corolla closed. *E. Bot.* t. 53; *Ed. Cat.* p. 8.

Corn-fields and dry gravelly banks; principally in Norfolk, and near Norwich. Isle of Wight: *Dr. Bromfield.* *Fl.* July. ☉. — Spikes of *flowers* much larger than in the preceding, and exceedingly handsome, from the bright varied colours, yellow, purple, rose-colour, and green, of the blossoms and *bracteas*.

3. M. *praténse* L. (*common yellow Cow-wheat*); flowers axillary secund, leaves in distant pairs, corolla 4 times as long as the calyx closed, the lower lip protruded, upper bracteas mostly pinnatifid or toothed at the base. *E. Bot.* t. 113; *Ed. Cat.* p. 8. — β. smaller, somewhat succulent, bracteas quite entire. *Ed. Cat.* p. 1. M. montanum *Johnst. Fl. of Berw.*

Groves and thickets (not in meadows, as the name would imply), frequent. — β. Mountains. *Fl.* July, Aug. ☉, — One foot or more high, slender, with straggling opposite branches. *Flowers* large, pale yellow.

4. M. *sylváticum* L. (*lesser-flowered yellow Cow-wheat*); flowers axillary secund, leaves in distant pairs, corolla scarcely twice as long as the calyx, the lips equal in length a little open. *E. Bot.* t. 804; *Ed. Cat.* p. 8.

Alpine woods, rare, in the North of England; more general, but very local, in Scotland. In several parts of Perthshire; Auchindrane, woods on the Doune, Craigs of Ness, &c., Ayrshire. *Fl.* July. ☉.—1 ft. high. *Bracteas* always entire. *Cor.* deep yellow, very small, quite different from the preceding.

6. Pediculáris *Linn.* Louse-wort.

Cal. inflated, 5-cleft, or unequally 2—3-lobed, jagged, somewhat leafy. Upper *lip* of the *Cor.* laterally compressed, arched; lower one plane, 3-lobed. *Caps.* oblique, compressed, 2-celled. *Seeds* angular. — Name derived from its supposed property of producing the lousy disease in sheep that feed upon it, but which rather arises from the wet pastures where such plants grow.

1. P. *palústris* L. (*Marsh Louse-wort*, or *tall Red-rattle*); stem solitary branched upwards erect, calyx broadly ovate hairy ribbed with crenated nearly equal lobes. *E. Bot.* t. 399.

Wet and marshy pastures. *Fl.* June, July. ♃. — *Stem* 1 foot high, with many lateral branches. *Leaves* pinnate; *pinnæ* ovate, almost pinnatifid. *Flowers* large, handsome, deep rose-colour.

2. P. *sylvática* L. (*Pasture Louse-wort*, or *Dwarf Red-rattle*); stem branched from the base and spreading, calyx oblong

angular glabrous in 5 unequal crenate and almost leafy segments. *E. Bot.* t. 399.

Moist pastures and heaths, common. *Fl.* July. ♃. — *Stems* 3—5 inches long. Lower *leaves* pinnatifid, the rest pinnated with deeply serrated *pinnæ*. *Flowers* large, handsome, pale rose-coloured; they are occasionally found with a salver-shaped, 6-cleft, regular *corolla*, and 6 *stamens*, 4 long and 2 short. *Mr. F. J. White* sends white-flowered specimens from between the King's House and Fort William; and such are found not uncommonly in the West Highlands.

7. Scrophulária *Linn.* Figwort.

Cal. 5-lobed (or in *S. vernalis* deeply 5-cleft). *Cor.* subglobose; its *limb* contracted with 2 short *lips;* the upper with 2 lobes, and frequently a small *scale* or abortive stamen within it; the lower 3-lobed. *Caps.* 2-celled, 2-valved, the margins of the valves turned inwards. — Named from the *Scrophula*, a disease which this plant was supposed to cure.

* *Calyx with 5 rounded lobes; flowers purple.*

1. S. *nodósa* L. (*knotted Figwort*); leaves cordato-triangular acute doubly serrated glabrous, stem with 4 rather obtuse angles, root tuberous. *E. Bot.* t. 1544; *Ed. Cat.* p. 12.

Woods and moist grounds, frequent. *Fl.* July. ♃. — *Root* large, thick and knotty. *Stem* 2—3 feet high. *Flowers* in dichotomous, axillary, and terminal, bracteated *panicles*. *Cor.* greenish-purple, with a scale in the upper *lip*.

(*S. Ehrharti* C. A. Stev., I am informed by Mr. Borrer, has been sent to Mr. Sowerby from near Preston, by *Mr. Gilbertson;* from near Willingdon, Sussex, by *Mr. C. Jenner;* and it also grows on Primrose Hill. Of this, Mr. H. C. Watson observes, "I have seen only the brief description in the *Trans. Bot. Soc. Ed.* i. p. 57., and no authentic specimen, but strongly suspect that Mr. Steven's *S. Ehrharti* is the *S. aquatica* L. of Koch's *Synopsis*, and that the common south of England *S. aquatica* L., as we call it, is the *S. Balbisii* Hornem. of the same *Synopsis*. The *S. Ehrharti* is our northern form. I have it from Edinburgh, and Settle in Yorkshire; at least what I suppose to be the plant.")

2. S. *aquática* L. (*Water Figwort, Water Betony*); glabrous, leaves crenato-dentate elliptical-ovate mostly cordate at the base, stem winged at the angles. *E. Bot.* t. 854; *Ed. Cat.* p. 12.

Sides of rivers, and in wet places. *Fl.* July. ♃. — Three to four feet high. *Panicles* terminal, bracteated, with remote branches. *Flowers* dark purple at the mouth, with a *scale* in the upper *lip*. *Cal.* margined with purple.

3. S. *Scorodónia* L. (*Balm-leaved Figwort*); downy, leaves cordato-triangular with large double serratures, panicles leafy. *E. Bot.* t. 2209; *Ed. Cat.* p. 12.

Moist places, only in the extreme south and south-west of England, and at Tralee in Ireland. Jersey. *Fl.* July. ♃. — Distinguished from all the preceding by being downy; by its *leaves*, wrinkled like *balm* (*Miss*

Warren); having large teeth or serratures, which are again serrated, and by the leaves which accompany the *panicle*. *Flowers* dull purple, with a *scale* inside. The Rev. Mr. Bree has sent me a plant which he considers a hybrid between *S. Scorodonia* and *S. aquatica*, brought from St. Ives, and cultivated in his garden.

** *Calyx with 5 deep, acute segments; flowers yellow.*

4. S. *vernális* L. (*yellow Figwort*); hairy, leaves broadly cordate doubly inciso-serrate acute, peduncles axillary solitary forked leafy, scale of the upper lip wanting. *E. Bot.* t. 567; *Ed. Cat.* p. 14.

Road-sides and waste places, in many parts of England and Scotland; but nowhere general. *Fl.* April, May. ♃. — Considerably different in many points from all the preceding, and, as Sir James E. Smith has well observed, exhibiting a great affinity with the pretty Peruvian Genus *Calceolaria*. *Styles* and *stamens*, which latter arise from the base of the yellow *corolla*, protruded from its very contracted mouth.

8. Digitális *Linn.* Foxglove.

Cal. in 5, deep, unequal segments. *Cor.* campanulate, inflated beneath; *limb* obliquely 4—5-lobed, unequal. *Caps.* ovate, of 2 *cells*, and many *seeds*. — Name: *digitale*, the *finger of a glove*, which its flowers resemble. Hence, *Fox-glove* in English, and *doigts de la Vierge*, *gants de notre Dame*, &c., in French.

1. D. *purpúrea* L. (*purple Foxglove*); segments of the calyx ovate acute, corolla obtuse its upper lip or lobe scarcely divided, leaves ovato-lanceolate crenate downy. *E. Bot.* t. 1297; *Ed. Cat.* p. 4.

Dry banks, pastures, walls, &c., in hilly and especially in subalpine and rocky countries; hence almost unknown in the more eastern parts of England, such as Norfolk and Suffolk. *Fl.* June, July. ♂. — The most stately and beautiful of our herbaceous plants; and one that has obtained great reputation as a medicine. Three to four feet high. *Leaves* large, veiny. *Spikes* very long, of numerous, drooping, purple (or rarely white), *flowers*, spotted within.

9. Antirrhínum *Linn.* Snapdragon.

Cal. 5-partite. *Cor.* personate, gibbous at the base (no distinct spur); its *mouth* closed by a projecting palate. *Caps.* 2-celled, oblique, opening by three pores at the extremity. *Juss.*—Name: αντι, *resembling*, ῥιν, a *nose*, *muffler*, or *mask*; from the appearance of the flowers.

1. A. **május* L. (*great Snapdragon*); leaves lanceolate alternate those of the branches opposite, flowers spiked, segments of the calyx ovate obtuse. *E. Bot.* t. 129.

Old walls and chalk-hills, frequently originating from neighbouring gardens. *Fl.* July, Aug. ♃. — One to two feet high. *Flowers* very large, mostly purplish-red, but often varying to white.

2. A. *Oróntium* L. (*lesser Snapdragon*); leaves mostly alternate linear-lanceolate, spikes very few-flowered lax, segments of the calyx longer than the corolla. *E. Bot.* t. 1155.

Corn-fields in a dry soil, in many parts, especially of the east and south of England. *Fl.* July, Aug. ☉. — *Flowers* purple, remarkable for the great length of the *calyx-segments*, particularly after flowering.

10. Linária *Juss.* Toad-flax.

Cal. 5-partite. *Cor.* personate, spurred at the base; its *mouth* closed by a projecting palate. *Capsule* ventricose, 2-celled, opening by valves or teeth. — Named from *Linum, flax*, which the leaves of some species resemble.

1. L. **Cymbalária* Mill. (*Ivy-leaved Toad-flax*); leaves cordate 5-lobed alternate glabrous, stems trailing. *Ed. Cat.* p. 8. Antirrhinum Cymbalaria *L.: E. Bot.* t. 502.

On old walls, in many places; the outcast of gardens. *Fl.* all the summer. ♃. — *Stem* very long, filiform. *Leaves* petioled, often purple beneath. *Flowers* small, pale blue, or purplish.

2. L. *spúria* Mill. (*round-leaved Toad-flax*); leaves ovate downy mostly alternate, branches trailing, cor. with a subulate curved spur. *Ed. Cat.* p. 8. Antirrhinum spurium *L.: E. Bot.* t. 691.

Sandy corn-fields, mostly confined to the east and south-east of England. Abundant in many parts of Norfolk and Suffolk. *Fl.* July —Sept. ☉. — *Flowers* small, yellowish; upper *lip* purple. *Cal.* large.

3. L. *Elátine* Desf. (*sharp-pointed Fluellen*, or *Toad-flax*); leaves broadly hastate acute, lowermost ovate opposite, branches trailing hairy, cor. with a subulate straight spur. *Ed. Cat.* p. 8. Antirrhinum Elatine *L.: E. Bot.* t. 692.

Corn-fields in a dry, gravelly or chalky soil, England. *Fl.* July—Sept. ☉. — Similar to the last, yet distinct; smaller in all its parts. Miss Warren pointed out to me the distinction in the spur.

4. L. *répens* Ait. (*creeping pale-blue Toad-flax*); leaves linear whorled or scattered, stem erect panicled, calyx glabrous the length of the spur, (corolla striated). *Ed. Cat.* p. 8. Antirrhinum repens *L.: E. Bot.* t. 1253.

Chalky banks and rocky places near the sea, rare; principally in the south of England and Ireland. Near Colzean, Ayrshire, and near Musselburgh, Scotland. *Fl.* July—Sept. ♃. — *Stems* erect, 1 to 1½ foot high, slender, branched. *Leaves* somewhat whorled below, but there soon dying away. *Flowers* in panicled *racemes*, bluish; *palate* yellow.

5. L. *Itálica* Trev. (*Italian Toad-flax*); glabrous, stem diffuse branched, leaves scattered linear-lanceolate (ovato-lanceolate near the base of the stem?), flowers racemose, divisions of the calyx oblong-lanceolate nearly equalling the capsule, spur straight or slightly curved, more than one third the length of the corolla. *Wats.; Reich. Ic. Bot.* 5. f. 608. L. Bauhini *Wats. in Lond. Journ. of Bot.* vol. i. p. 79. Antirrhinum *Gaud.*

Antirrhinum genistifolium *Vill.* and *DeCand.* (Linaria), *not of Linn. nor Bot. Mag.*

Hedges; Shirley, near Southampton, growing with *L. repens* and *L. vulgaris*. Penryn, by the road to Truro: *H. C. Watson, Esq.* By the river Bandon, Cork: *Rev. Mr. Hincks. Fl.* Aug., Sept. ♃.—Mr. H. C. Watson has entered fully into the history of this addition to the British Flora in the place above quoted; and I have only to add, that he has in a subsequent communication to me, rightly, as I think, referred it to *L. Italica* of Treviranus.

6. L. *vulgáris* Mœnch (*yellow Toad-flax*); erect, leaves linear-lanceolate scattered, crowded, spikes terminal, flowers imbricated, calyx glabrous shorter than the spur. *Ed. Cat.* p. 8. Antirrhinum Linaria *L.: E. Bot.* t. 658.

Borders of corn-fields, and in hedges, abundant. *Fl.* Aug. ♃.—One to two feet high, glaucous. *Flowers* large, yellow. A remarkable but not very uncommon monstrosity of this is the "*Peloria var.*" (figured in *E. Bot.* t. 260, and *Ed. Cat.* p. 8.) with 5 spurs and 5 usually imperfect stamens.

7. L. *Pelisseriána* DeC. (*upright purple Toad-flax*); leaves linear-alternate, those of the sterile shoots ternate and broader, flowers in short racemes, sepals linear acute twice as long as the capsule, much shorter than the spur of the corolla, seeds nearly flat with a deeply fringed margin, tuberculated on one side. *Bab. Fl. Sarn.* p. 68; *E. Bot. Suppl.* t. 2832; *Ed. Cat.* p. 8.

On a hill-side, growing amongst *Ulex Europæus*, between St. Peter's barracks and a water-mill near St. Ouen's Pond, Jersey: *Messrs. Babington, Christy* and *Lingwood. Fl.* June. ☉.—*Stems* 6 inches to a foot high. *Flowers* purple, with darker veins. The *seeds* are a beautiful microscopic object.

8. L. *minor* Desf. (*least Toad-flax*); leaves linear-lanceolate obtuse mostly alternate downy, stem erect much branched, calyx longer than the spur. *E. Bot.* t. 2014; *Ed. Cat.* p. 8.

Sandy fields; principally, I believe, in the eastern and south-eastern parts of England. Rare in Scotland, and only found in the vicinity of Glasgow. At Sunday's well in Ireland. *Fl.* June, July. ☉.—6—8 inches high, with small purplish-yellow *flowers*, which are stalked, solitary and axillary. *Seeds* beautifully furrowed.

[The Neapolitan *Linaria purpurea* Mill. (Bot. Mag. p. 99) is given in the *New Bot. Guide* as being found at Redland, near Bristol, by *Miss Worsley*. It is probably the outcast of a garden.]

11. Limoséllа *Linn.* Mudwort.

Cal. 5-cleft, equal. *Cor.* shortly 5-cleft, campanulate, equal. *Stam.* nearly equal. *Stigma* capitate. *Caps.* globose, 2-valved. —Named from *limus, mud:* the plant growing in muddy places.

1. L. *aquática* L. (*common Mudwort*); leaves lanceolate spathulate on long stalks, scapes shorter than the petioles. *E. Bot.* t. 357; *Ed. Cat.* p. 8.

Muddy places, and where water has stood, in several parts of Eng-

land, Scotland, and Ireland, but often overlooked on account of its small size. *Fl.* July, Aug. ⊙.—*Root* creeping, filiform, throwing up clusters of glabrous *leaves* one or two inches long, including their petiole. *Flowers* minute, peduncled, arising from the base of the *leaf-stalks*. *Cor.* pale rose-coloured. *Anthers* purplish-blue, one-celled. *Seeds* with a furrow on the back and numerous transverse striæ.

12. Sibthórpia *Linn.* Sibthorpia.

Cal. in 5, deep, spreading segments. *Cor.* 5-cleft, rotate, the two lowermost segments the narrowest. *Stigma* dilated. *Capsule* nearly orbicular, compressed, 2-celled, 2-valved.—Name given in honour of *Dr. Humphrey Sibthorpe*, the successor of Dillenius in the botanical chair at Oxford.

1. S. *Europæa* L. (*creeping Sibthorpia*, or *Cornish Money-wort*). *E. Bot.* t. 649.

Moist shady places, in Devonshire, Cornwall, and the Scilly Isles. By the stream running from Waldron Down, Sussex: *Mr. Kippist.* Near Nettlecombe, Somerset, and in Jersey and Guernsey. At Conner hill, near Dingle; and near Brandon, Ireland. *Fl.* July, Aug. ♃.—A graceful little plant, hairy, with creeping filiform *stems*, and alternate, orbicular-reniform, broadly crenate *leaves*. *Flowers* axillary, solitary, on short stalks, pinkish-white, very small.

C. *Stamens* 5. (Gen. 13.)

13. Verbáscum *Linn.* Mullein.

Cal. 5-partite. *Cor.* rotate, irregular. *Stam.* 5, declined, often hairy. *Caps* of 2 cells and 2 valves.—Name altered from *Barbascum*, from *barba*, a *beard;* in allusion to the shaggy nature of its foliage.

1. V. *Thápsus* L. (*great Mullein*); leaves decurrent woolly on both sides, stem simple, spike of flowers very dense, 2 stamens longer glabrous. *E. Bot.* t. 549; *Ed. Cat.* p. 14.

Banks and waste ground, in a light, sandy, gravelly or chalky soil. *Fl.* July, Aug. ♂.—*Stem* 4—5 feet high, angular, winged. *Leaves* thick, excessively woolly, ovate or oblong. *Spike* long, cylindrical. *Flowers* handsome, golden-yellow; when dried in the sun, giving out a fatty matter used in Alsace as a cataplasm in hæmorrhoidal complaints. 3 of the *stamens* hairy; the 2 longer ones glabrous.

2. V. *Lychnítis* L. (*white Mullein*); leaves oblong wedge-shaped nearly glabrous above, stem angular and panicled. *E. Bot.* t. 58; *Ed. Cat.* p. 14.

Road-sides, pastures and fields, especially in a chalky soil. On clay-slate, near Truro. *Fl.* July, Aug. ♂.—*Flowers* numerous, rather small, cream-coloured. *Leaves* very woolly below. *Stamens* hairy.

3. V. "*thapsifórme* Schrad." (*Thapsus-like Mullein*); "stem simple, leaves lanceolate-ovate, raceme spiked dense, bracteas longer than the woolly calyx, segments of the corolla obovate

rounded, 2 anthers oblong." *D.C.: Lindl. Syn.* p. 181; *Ed. Cat.* p. 14. "V. thapsoides *Willd.*"

"By road-sides in Kent. *Fl.* July, Aug. ♂." *Lindley.*

4. V. *floccósum* Waldst. et Kit. (*yellow hoary Mullein*); leaves ovato-oblong subserrated pulverulento-tomentose on both sides, stem rounded panicled. *Ed. Cat.* p. 14. V. pulverulentum *Sm. E. Bot.* t. 487 (*not Vill.*).

Road-sides on a gravelly or chalky soil: frequent in Norfolk and Suffolk. Den, near Cullen, Scotland. *Fl.* July. ♂.—Remarkable for the mealy down on the *leaves*, which is easily removed from the surface. *Flowers* large, handsome. "If the plant be struck suddenly and violently, the expanded corollas will in a short time fall off, and the calyx will close over the germen." (*Sm.*) This plant is now said not to be the *V. pulverulentum* Vill., but it certainly is the *V. floccosum* of Waldstein and Kitaibel, *Fl. Hung.* t. 81.

5. V. *nígrum* L. (*dark Mullein*); leaves oblongo-cordate petioled crenate subpubescent. *E. Bot.* t. 59; *Ed. Cat.* p. 14.

Banks and way-sides, particularly in a gravelly or chalky soil. Rare in Scotland. Between Seton and Gosford. Banks of the Esk, and Borthwick Castle. *Fl.* July, Aug. ♃.—*Leaves* nearly glabrous, dark green. *Flowers* in clusters on the almost simple long spike. *Cor.* rather large, yellow. *Stam.* with bright purple hairs.

6. V. *virgátum* With. (*large-flowered Primrose-leaved Mullein*); "leaves ovato-lanceolate toothed sessile, radical ones downy somewhat lyrate, stem branched, flowers aggregate partly sessile." *E. Bot.* t. 550; *Ed. Cat.* p. 14.

Fields and by road-sides, rare. Near Wrexham: *Mrs. Nash;* also Bevere, near Worcester (naturalised). Perfectly wild about Gresford: *Mr. J. E. Bowman.* Near Plymouth and Lincoln. Torpoint, Cornwall: *George Oman, Esq.* *Fl.* Aug. ♂.—Allied to the following.

7. V. *Blattária* L. (*Moth Mullein*); leaves amplexicaul crenate oblong glabrous radical ones sinuate, upper ones acuminate, flowers stalked remote collected into an elongated branched raceme. *E. Bot.* t. 393; *Ed. Cat.* p. 14.

Banks in a gravelly soil, rare. In several places in Kent (whence specimens have been sent to me, from Cobham), and not unfrequent in Devonshire and Cornwall. *Fl.* July. ☉.

Ord. LXI. LABIATÆ.

Calyx tubular. *Corolla* monopetalous, hypogynous, irregular. *Stamens* 4, mostly didynamous, 2 sometimes sterile or wanting. *Germen* 1, deeply 4-lobed, the *style* arising from the middle of the lobes. *Stigma* 2-lobed. *Achenia* 4, enclosed in the calyx. *Seed* solitary, erect. *Embryo* erect. *Albumen* 0. —Leaves *opposite.* Stems *square.* *Br.* — An extensive and eminently natural order, abounding in essential oil, camphor, and bitter extractive: many of the individuals are therefore employed medicinally.

A. *Stamens* 2. (Gen. 1, 2.)

1. LÝCOPUS *Linn.* Gypsy-wort.

Cal. tubular, 5-cleft. *Cor.* tubular; *limb* nearly equal, 4-cleft, upper segments broaded and notched. *Stam.* distant, simple.—Name: from λυκος, a *wolf*, and πους, a *foot;* from a fancied resemblance in the cut leaves of this plant to a wolf's paw: *der Wolfsfuss*, in Germ.; in English, *Gypsy-wort*, because the plant yields a black dye which is employed by gypsies to render their skins darker.

1. L. *Europæus* L. (*common Gypsy-wort*); leaves deeply and irregularly pinnatifido-serrate. *E. Bot.* t. 1105; *Ed. Cat.* p. 8.

Ditches and river banks; less frequent in Scotland. *Fl.* June, July. ♃.—*Stems* 2 feet high. *Leaves* opposite, nearly sessile, ovate-lanceolate, wrinkled, very deeply sinuato-serrate, almost pinnatifid. *Flowers* small, sessile, in dense *whorls* at the base of the superior leaves, whitish with purple dots, hairy within.

2. SÁLVIA *Linn.* Sage, *or* Clary.

Cal. 2-lipped, tubular. *Cor.* labiate; the *tube* dilated upwards and compressed. *Stam.* 2. *Filaments* with 2 divaricating branches, 1 only bearing a perfect, single cell of an *anther*.—Named from *salvo*, to *save*, or *heal*, in allusion to its balmy or healing qualities.

1. * S. *praténsis* Linn. (*Meadow Clary*, or *Sage*); lower leaves cordato-oblong irregularly crenate stalked, those of the stem semiamplexicaul, bracteas very small, corolla twice as long as the calyx glandular and viscid at the summit. *E. Bot.* t. 153; *Ed. Cat.* p. 12.

Dry meadows and about hedges, England, but rare: near Cobham in Kent. *Fl.* July. ♃.—Varying in size from 6 inches to 2 feet high.

2. S. *Verbenáca* L. (*wild English Clary*, or *Sage*); leaves sinuated and serrated, corolla much narrower and scarcely longer than the calyx. *E. Bot.* t. 154; *Ed. Cat.* p. 12.

Dry pastures and banks, especially in a chalky or gravelly soil; not uncommon in England, but in Scotland only found about Edinburgh. *Fl.* June, July. ♃.—One to two feet high. Lower *leaves* petiolate, ovate; upper ones sessile and acute, less lobed, but more serrated: all wrinkled with veins. *Bracteas* 2 under each whorl of flowers, cordate, acute, entire, ciliated. *Cal.* hairy, segments mucronate. *Cor.* small in proportion to the calyx, purple. *Upper lip* concave, compressed.

(In the *Flora Sarnica* Mr. Babington has introduced, as a native of Jersey and Guernsey, *Sálvia clandestina* Linn.? with the remark: "I have been unable to determine these plants in a satisfactory manner (viz. *S. clandestina* and *S. Verbenaca*). Many of the plants in these islands agree well with the true *S. Verbenaca* Linn. and Sm.; other specimens appear to be the *S. Verbenáca* of Reichenbach (*Ic.* t. 523), which seems to be correctly referred by Mr. Bentham (*Lab.* p. 240)

to *S. clandestina*. A third form, which is found in these islands, exactly resembles *S. oblongata* of Reichenbach's *Iconogr.* t. 522., which also appears to be referable to *S. clandestina*. In this the leaves are only slightly cut, and gradually decrease in size up to the flowers, the enlarged upper pair being altogether wanting.")

B. *Stamens* 4, *didynamous.* (Gen. 3—21.)

Tribe I. MENTHOIDEÆ *Benth.*

Tube of the Cor. scarcely longer than the cal., its limb 4—*5-cleft, nearly regular. Stam. distant.* (Gen. 3.)

3. MÉNTHA *Linn.* Mint.

Cal. equal, 5-toothed, its *mouth* naked or rarely villous. *Cor.* nearly regular, 4-cleft, its *tube* very short. *Stam.* distant, exserted or included. *Filaments* naked. *Anthers* with 2 parallel cells. *Benth.*—Name: μινθα or μινθη, an ancient Greek term.

1. M. *sylvéstris* L. (*Horse Mint*); leaves ovato-oblong very acute unequally serrated downy hoary beneath, spikes almost cylindrical scarcely interrupted, bracteas subulate, calyx very hairy. *E. Bot.* t. 686; *Ed. Cat.* p. 8.

Moist waste ground: not uncommon in England. Siedlaw hills. Forfarshire. Ireland. *Fl.* Aug. Sept. ♃.—Mr. Drummond's specimens, and others gathered by Mr. Banks near Plymouth, have the partial *bracteas* much longer than the *flower*, and far more conspicuous than in my other specimens and the figure in *E. Bot.*

2. M. *rotundifólia* L. (*round-leaved Mint*); leaves elliptical obtuse sharply serrated wrinkled downy shaggy beneath, spikes interrupted, bracteas lanceolate, calyx somewhat hairy. *E. Bot.* t. 446; *Ed. Cat.* p. 8.—β. *velutina* Bab.: *Ed. Cat.* p. 8.

Moist places, in waste ground; not unfrequent in many parts of England. Anglesea, but scarcely wild. Near Auchindenny, Scotland. Near Cove, Ireland. *Fl.* Aug. Sept. ♃.

3. M. **víridis* L. (*Spear-Mint*); leaves lanceolate acute glabrous serrated sessile, spikes interrupted, bracteas setaceous somewhat hairy as well as the calyx, pedicels glabrous. *E. Bot.* t. 2424.—β. *crispa* Benth. (δ. *Sm.*): *Ed. Cat.* p. 8.

Marshy places, in many parts of England, according to *Sm.* Cairnhill, near Edinb.—β. Glen Farg, Perths., along with *M. viridis* α. and *M. piperita*. *Fl.* Aug. ♃.—Cultivated for culinary purposes, being aromatic and pungent.

4. M. *piperíta* Sm. (*Pepper-Mint*); leaves ovato-lanceolate strongly serrated acute slightly hairy stalked, spikes interrupted, bracteas lanceolate, calyx glandular quite glabrous at the base. *E. Bot.* t. 687; *Ed. Cat.* p. 8.—β. *sylv.* Sole: *Ed. Cat.* p. 8.

Watery places in many parts of England; but often the outcast of gardens. Alford, Aberdeenshire. North Queensferry: *Dr. Dewar. Fl.* Aug. Sept. ♃.—Much cultivated for the sake of its essential oil, which resides in minute glands, conspicuous on the *leaves*, and especially on the *cal.* Mr. W. Wilson finds a *var.* near Warrington in which these

glands are not visible even with a microscope: " its odour is sweet and mild, without the pungency of the common sort cultivated in gardens."

5. M. **citráta* Ehrh. (*Bergamot-Mint*); leaves broadly ovate or cordate strongly serrated acute glabrous on both sides, spikes capitate very obtuse, calyx and pedicels quite glabrous. M. odorata *Sole: E. Bot.* t. 1025.

Watery places, rare. Cheshire: near Bedford and in N. Wales. *Fl.* Aug. Sept. ♃.—I have only seen garden specimens of this. It has much the habit of *M. hirsuta;* but it is quite glabrous, and " has the smell of the *Bergamot Orange* or of the herbage of *Monarda didyma.*" *Sm.*

6. M. *hirsúta* L. (*hairy Mint*); leaves ovate serrated pubescent stalked, flowers capitate or whorled, calyx hairy, pedicels with reflexed hairs. *E. Bot.* t. 447. M. sativa *L.: E. Bot.* t. 448.

Banks of rivers and marshes, frequent. *Fl.* Aug. Sept. ♃.—Very variable. *Leaves* often much crisped, when I presume it becomes the M. crispa (*E. Bot. Suppl.* t. 2785.) found in Northumberland, and also wild, near Audley End, Essex, by *Mr. W. Cumming.* Sometimes the *flowers* are capitate, sometimes whorled, and sometimes the whorls are placed so close on the extremity of the branches as to form a *spike.*

7. M. *acutifólia* Sm. (*sharp-leaved Mint*); leaves ovato-lanceolate tapering at each end, flowers whorled, calyx hairy all over, hairs of the flower-stalks spreading. *E. Bot.* t. 2415. M. arvensis *Benth.*

Banks of the Medway. *Fl.* Sept? ♃.—Very closely related to the last species (*Sm.*), and probably a mere variety.

8. M. *rúbra* Sm. (*tall red Mint*); " stem upright zigzag" (*Sm.*), leaves ovate serrated subglabrous stalked, flowers whorled, pedicels and lower part of the calyx quite glabrous, teeth hairy. *E. Bot.* t. 1413. M. arvensis δ. *Benth.*

Wet places in hedges and thickets and banks of rivers. *Fl.* Sept. ♃.—4—5 feet high. *Flowers* purplish-red, with linear somewhat hispid *bracteas* at the base.

9. M. *gentílis* L. (*bushy red Mint*); " flowers whorled, leaves ovate, stem much branched spreading, flower-stalks and base of the bell-shaped calyx nearly glabrous." *E. Bot.* t. 2118. M. arvensis η. *Benth.*

Watery places, rare. North Wales. River-side above Warrington. Holt, in Norfolk; and in Somersetshire. *Fl.* Aug. ♃.—I have seen no Scottish specimens of this plant. Mine are from the Holt station, and such as are figured in *E. Bot.* On comparing them with a Yorkshire specimen of *M. rubra* from Mr. Turner, I find them to be the same; and was hence led in *Fl. Scot.* to doubt of their real difference. In this I am corrected by Sir J. E. Smith. The present has much smaller *flowers* than the last, not so much confined to the axils as in *M. rubra.* Cultivated for its agreeable scent, which is improved and rendered more powerful by a dry soil.

10. M. *grácilis* Sm. (*narrow-leaved Mint*); " flowers whorled, leaves lanceolate nearly sessile, stem upright much branched,

flower-stalks and base of the calyx quite smooth." M. gentilis *E. Bot.* t. 449. M. arvensis *η. Benth.*

Watery places in moist meadows. (*Sm.*) *Fl.* Aug. Sept. ♃.—Apparently very nearly allied to the preceding, and Mr. Bentham considers them both as the same var. (*η*) of *M. arvensis.*

11. M. *arvénsis* L. (*Corn-Mint*); flowers whorled, leaves ovate hairy serrated, calyx campanulate and clothed with spreading hairs. *E. Bot.* t. 2119; *Ed. Cat.* p. 8.

Corn-fields. *Fl.* Aug. Sept. ♃.—The short and campanulate *calyx* well distinguishes this species. *Peduncles* glabrous or hairy. The smell has been compared to that of decayed cheese.

12. M. *agréstis* Sole (*rugged Field-Mint*); "flowers whorled, leaves somewhat heart-shaped strongly serrated rugose, stem erect, calyx bell-shaped covered all over with horizontal hairs." *E. Bot.* t. 2120. M. arvensis *ρ. Benth.*

Corn-fields and neglected gardens, Somersetshire; plentiful in Sussex. *Fl.* Aug. Sept. ♃.—"Whether this be a distinct species or not [from the preceding], I will not dare to assert, nor do I know any person competent to decide the question." *Sm.*

13. M. *Pulégium* L. (*Penny-royal*); flowers whorled, leaves ovate downy obtuse subcrenate, stem prostrate, flower-stalks slightly and calyx very pubescent, teeth of the latter fringed. *E. Bot.* t. 1026; *Ed. Cat.* p. 8.

Wet commons and margins of brooks, England and south of Ireland. Rare in Scotland and probably not indigenous. *Fl.* Aug. Sept. ♃.—The smallest of the genus, readily known by its prostrate *stems* and small frequently recurved *leaves*, both of which are thickly covered with short hairs. Smell powerful. Much employed medicinally.

Tribe II. Satureineæ *Benth.*

Corolla two-lipped, the tube about as long as the calyx: lips nearly equal in length; upper one nearly plane. Stam. distant. (Gen. 4, 5.)

4. Thýmus *Linn.* Thyme.

Flowers whorled or capitate. *Cal.* with 10 ribs, tubular, 2-lipped: upper *lip* 3-toothed, lower one bifid; the throat hairy. *Cor.* with the upper lip erect, nearly plane, notched, lower patent and trifid. *Benth.*—Name: θυμος, *strength;* from its balsamic odour strengthening the animal spirits.

1. T. *Serpýllum* L. (*wild Thyme*); flowers capitate, stems branched decumbent, leaves plane ovate obtuse entire petiolate more or less ciliated at the base. *E. Bot.* t. 1514; *Ed. Cat.* p. 14.—*β.* hirsut. *Sm.: Ed. Cat.* p. 14.

Hills and dry pastures, abundant. *Fl.* July, Aug. ♃.—Variable in size, and in the hairiness and scent of its foliage, which is sometimes all over hoary, and smells like lemon. *Flowers* purple.

The other species of Linnæan *Thymus* are referred to *Acinos* and *Calamintha.*

5. ORÍGANUM *Linn.* Marjoram.

Spikes (or *heads*) of *flowers* 4-sided, resembling a *catkin*, imbricated with *bracteas*. *Cor.* with the upper *lip* erect, nearly plane; lower one patent, trifid. *Benth.* — Name: ορος, a *hill*, and γανος, *joy*; from the dry hilly places of which the species are the ornament.

1. O. *vulgáre* L. (*common Marjoram*); heads of flowers roundish panicled crowded glabrous, bracteas ovate longer than the calyx, leaves ovate entire. *E. Bot.* t. 1143; *Ed. Cat.* p. 9.

Dry hilly and bushy places, not unfrequent. *Fl.* July, Aug. ♃.— *Stems* 1 foot high. *Flowers* purple; *bracteas* tinged with the same colour. Fragrant and aromatic.

"The Thyme strong-scented 'neath one's feet,
And *Marjoram* so doubly sweet." — *Clare.*

Tribe III. AJUGOIDEÆ *Benth.*

Upper lip of the corolla abbreviated or apparently wanting. Stamens much exserted. (Gen. 6, 7.)

6. TEÚCRIUM *Linn.* Germander.

Cal. tubular, 5-toothed, nearly equal or 2-lipped. *Cor.* with the upper *lip* bipartite; lower one patent, 3-fid. *Stam.* much exserted. Cells of the *anthers* confluent, spreading. — Named from *Teucer*, Prince of Troy, who first employed this plant medicinally.

1. T. *Scorodónia* L. (*Wood Germander*, or *Sage*); leaves cordate petiolate downy crenate, flowers in lateral and terminal one-sided racemes, stem erect. *E. Bot.* t. 1543; *Ed. Cat.* p. 14.

Woods and dry stony places, frequent. *Fl.* July, Aug. ♃.—*Stems* 1—2 feet high. *Leaves* very much wrinkled. *Flowers* yellowish-white. *Stam.* purplish-red. The plant is extremely bitter, and has been sometimes substituted for hops.

2. T. *Scórdium* L. (*Water Germander*); "herbaceous perennial villous rarely glabrous, leaves oblong toothed narrow or rounded at the base sessile green on both sides, floral ones similar, whorls axillary 2—6-flowered, calyces declinate campanulate their teeth short nearly equal." *Benth. Lab.* p. 679 (*not Sm.*); *Mackay: Fl. Hib.* p. 211 (*excl. syn.*); *Ed. Cat.* p. 14.

Near the bridge of Portumna, county Tipperary, Ireland: *Mr. Mackay.* Oxfordshire: *Sibthorp.* *Fl.* July. ♃.

3. T. *scordioides* Schreb. (*false Water Germander*); "herbaceous perennial woolly rarely subglabrous, leaves ovato-oblong crenate cordato-amplexicaul at the base green on both sides, floral ones similar, whorls axillary 6-flowered, calyces declinate campanulate their teeth short nearly equal." *Benth. Lab.* p. 679; *Ed. Cat.* p. 14. T. Scordium, *E. Bot.* t. 828 (*not L.*) *Sm.*

Low wet meadows, rare. Cambridgeshire. *Fl.* July, Aug. ♃.

4. T. **Chamædrys* L. (*Wall Germander*); leaves ovate inciso-serrate tapering into a footstalk, flowers axillary in threes, stem ascending. *E. Bot.* t. 680; *Ed. Cat.* p. 14.

Borders of fields and mostly ruined walls; Winchelsea Castle, Sussex; Gateshead, Durham; city walls of Norwich; plentiful. Near Forfar and Kelly-Angus; in Methvin wood, Perthshire. Near Cork: *Mr. Drummond. Fl.* July. ♃.—*Flowers* reddish-purple, large, handsome, mostly in the terminal axils.

(*Teucrium regium* Schreb., a very dubious Spanish and Italian plant, according to Mr. Bentham, is given as British in the *Ed. Cat.*, but I can say nothing further respecting it.)

7. A'JUGA *Linn.* Bugle.

Cal. ovate, nearly equal, 5-cleft. *Cor.* with the tube exserted: upper *lip* short, erect, entire or emarginate; lower one larger, patent, trifid. *Stam.* 4, ascending, protruded above the upper lip.—Name altered from the *Abiga* (*abigo*, to drive away) of the Latins, a medicinal plant allied to this.

1. A. *réptans* L. (*common Bugle*); glabrous or downy, stem solitary with creeping scions. *E. Bot.* t. 489; *Ed. Cat.* p. 1.

Moist pastures and woods, abundant. *Fl.* May, June. ♃.—*Leaves* broadly ovate, more or less crenate, lower ones and those on the runners tapering into a footstalk. *Flowering-stem* erect, with sessile *leaves*. *Flowers* blue (sometimes white or flesh-coloured), in *whorls*, from the axils of the upper leaves or *bracteas*, which are often purplish.

2. A. *pyramidális* L. (*pyramidal Bugle*); hairy, whorls crowded into a pyramidal and tetragonal form, scions none, radical leaves oblongo-ovate large more or less crenate. *E. Bot.* t. 1270; *Ed. Cat.* p. 1.

Highland pastures, rare. Ben Nevis; plentiful at the Burn of Killigower and on the Ord of Caithness. Tor Aichaltie, near Brahan Castle, Ross-shire. Appin. Strath Erric, Inverness-shire. Isle of Lewis: *Mr. R. B. Bowman. Fl.* June. ♃.—4—6 inches high. *Leaves* gradually becoming smaller from the base upwards.

3. A. *alpina* L. (*alpine Bugle*); leaves almost glabrous unequally toothed all nearly of the same size, whorls of flowers rather distant. *E. Bot.* t. 477; *Ed. Cat.* p. 1.

Mountains; rare. Wales, Derbyshire, Durham, and Castleton, Derbyshire. Cave-hill, Belfast: *J. W. Murphy, Esq. Fl.* July. ♃.—I have seen no British specimens of this plant, and the Scotch ones, so called, have proved only *A. reptans*.

4. A. *Chamæpitys* Sm. (*Ground-Pine*, or *yellow Bugle*); hairy, stems spreading, leaves tripartite their segments linear-filiform, flowers axillary solitary shorter than the leaves. *E. Bot.* t. 77; *Ed. Cat.* p. 1. Teucrium *Linn.*

Sandy or gravelly fields; not unfrequent in Kent and Surrey. Triplow Heath, Cambridgeshire; and Purfleet, Essex. *Fl.* Apr. May. ☉.—Very different in habit from the preceding species. *Flowers* yellow

spotted with red, and nestled among the narrow segments of the *leaves*, of which the lowermost are much broader. *Stem* reddish-purple, glutinous.

Tribe IV. Nepeteæ *Benth.*

Cor. 2-*lipped.* *Stamens ascending, shorter than the upper lip.* (Gen. 8—22.)

* *Cal. equal or oblique,* 5—10-*toothed, not* 2-*lipped.* (Gen. 8—17.)

† *Stamens longer than the tube of the corolla.* (Gen. 8—16.)

8. Ballóta *Linn.* Horehound.

Cal. salver-shaped, equal, with 10 ribs and 5 broad mucronated teeth, naked within. *Cor.* with the upper *lip* erect, concave; lower one trifid, middle lobe the largest, emarginate. *Cells* of the *anthers* spreading. — Named βαλλωτη, from βαλλω, to *reject;* on account of its disagreeable smell.

1. B. *nígra* L. (*black Horehound*); leaves ovate crenato-serrate, teeth of the calyx shortly acuminate patent longer than the tube of the corolla. — α. *fœtida* Linn.; cal.-tube shorter and stouter, the teeth broadly ovate short suddenly acuminate mucronate carinato-reflexed. *Leight.* B. nigra *L.: E. Bot.* t. 46. B. fœtida *Linn., Leight. Shropsh. Fl.* p. 281. — β. *ruderalis* Fries; cal.-tube narrow and elongated gracefully dilated upwards, the teeth ovate gradually acuminate aristate erecto-patent. *Leight.* B. ruderalis *Fries: Leight. Shropsh. Fl.* p. 280.

Waste places near towns and villages, less frequent in the north. — β. Bomere, Shropshire: *Mr. Leighton. Fl.* July, Aug. ♃. — 2—3 ft. high. *Flowers* in *whorls*, purple, rarely white. Whole plant fetid.

9. Leonúrus *Linn.* Motherwort.

Cal. with 5 or 10 ribs, equal, with 5 subulate teeth, the throat naked. *Cor.* with the upper *lip* very hairy above, entire; lower one patent, trifid. *Anthers* sprinkled with shining dots. — Named from λεων, a *lion*, and ουρα, a *tail;* from a fancied resemblance in the plant to a lion's tail.

1. L. *Cardíaca* L. (*Motherwort*); leaves petiolate, lower ones cuneato-lanceolate 3-lobed, upper ones entire. *E. Bot.* t. 286; *Ed. Cat.* p. 7.

Hedges and waste places, in several parts of England. About Edinb. South of Ireland. *Fl.* Aug. ♃. — *Stem* 3 feet high, branched. *Flowers* in crowded *whorls*, white with a reddish tinge; upper lip of *cor.* shaggy. *Cal.* with pungent, spreading teeth.

10. Galeóbdolon *Huds.* Weasel-snout.

Cal. campanulate, 5-ribbed, nearly equal, 5-toothed. Upper *lip* of the *cor.* incurved, arched, entire; lower one smaller, in 3 nearly equal, acute lobes. — Named from γαλεη, a *weasel*, and

βδολος, a *fetid scent:* formerly considered synonymous with *Galeopsis*, from which genus it is now removed.

1. G. *lúteum* Huds. (*yellow Weasel-snout*, or *Archangel*). *E. Bot.* t. 787. Lamium Galeobdolon, *Ed. Cat.* p. 7.

Woods and shady places, in England, the South of Scotland, and Ireland. *Fl.* May, June. ♃. — One foot or more high. *Leaves* ovato-acuminate, petiolate, deeply serrated. *Flowers* whorled, yellow; lower *lip* orange and spotted.

11. Galeópsis *Linn.* Hemp-nettle.

Cal. campanulate, equal, 5-toothed, teeth mucronate. *Cor.* with the tube exserted, the throat inflated: upper *lip* arched; lower one with 3 unequal lobes, having two teeth on its upper side.—Name: γαλεη, a *weasel*, and οψις, *aspect* or *appearance;* from a resemblance in the lips of the flower to the snout of an animal.

1. G. *Ládanum* L. (*red Hemp-nettle*); stem not swollen below the joints, leaves lanceolate subserrate hairy, upper lip of the corolla slightly crenate. *E. Bot.* t. 884; *Ed. Cat.* p. 6.

Gravelly or chalky fields, or limestone rubbish. Rare in Scotland. 3 miles from Dunfermline: *Dr. Dewar. Fl.* Sept. Oct. ☉.—*Stem* 10—12 inches high, with opposite branches. *Leaves* rather small, petiolate, hairy. *Flowers* purplish rose-coloured.

2. G. *villósa* Huds. (*downy Hemp-nettle*); stem not swollen below the joints, leaves ovato-lanceolate serrated soft and downy, upper lip of the corolla deeply notched. *E. Bot.* t. 2353. G. ochroleuca *Lam.: Ed. Cat.* p. 6.

Sandy corn-fields, rare. Yorkshire, Lancashire, Nottinghamshire, and Bangor in Wales. *Fl.* July, Aug. ☉.—*Flowers* large, pale yellow.

3. G. *Tetráhit* L. (*common Hemp-nettle*); stem hispid swollen below the joints, leaves ovate hispid serrated, corolla with the upper lip erect ovate entire. *E. Bot.* t. 207; *Ed. Cat.* p. 6.

Corn-fields and cultivated grounds, frequent. *Fl.* Aug. ☉.—1—2ft. high. *Flowers* purplish, or often white.

4. G. *versícolor* Curt. (*large-flowered Hemp-nettle*); stem hispid swollen below the joints, leaves ovate hispid serrated, corolla with the upper lip horizontal inflated. *E. Bot.* t. 667; *Ed. Cat.* p. 6.

Corn-fields, Norfolk; common about Warrington. Near Llanrwst. Abundant in Scotland, especially in the Highlands. Ireland. *Fl.* July, Aug. ☉.—Quite different from the last (though the distinguishing marks are difficult to be described), and very beautiful. Often 2—3 feet high, with large rank foliage. *Flowers* showy, yellow, with a broad purple spot on the lower lip.

12. Lámium *Linn.* Dead-nettle.

Cal. campanulate, 10-ribbed, 5-toothed, nearly equal. *Cor* with the throat inflated: upper *lip* entire, arched; lower one

patent, 2-lobed, with one or two teeth on each side at the base. —Named from λαιμος, the *throat;* on account of the shape of the flower.

1. L. *álbum* L. (*white Dead-nettle*); leaves cordato-acuminate deeply serrated, calycine teeth long subulate, tube of the corolla curved upwards, the throat dilated, upper lip oblong, lateral lobes of the lower one with a long subulate tooth. *Ed. Cat.* p. 7. L. vulgatum *Benth.* — α. flowers white. L. album, *E. Bot.* t. 768. — β. flowers purple, leaves spotless. L. lævigatum *L.: Reich. Ic. Bot.* t. 216. L. rugosum *Ait.: Reich. l. c.* t. 217. L. maculatum *Sm.: E. Bot.* t. 1550. — γ. leaves smaller with white blotches. L. maculatum *L.: Reich. l. c.* t. 215; *Ed. Cat.* p. 6.

Borders of fields and waste places, abundant. — β. Naturalised near Bristol, London, and Fifeshire in Scotland: *Dr. Dewar.* — γ. Fifeshire: *Dr. Dewar;* indigenous? *Fl.* spring and summer. ♃. — I have followed Mr. Bentham in uniting the *L. lævigatum* and *maculatum* of Linn., and *L. rugosum* of Aiton, with the *album:*—and indeed, in Fifeshire and elsewhere, the white flowers of the latter are often tinged with red or purple, and the plant seems to pass gradually into *lævigatum.*

2. L. *purpúreum* L. (*red Dead-nettle*); leaves roundish-cordate crenate uppermost crowded longer than the flowers, tube of the corolla straight within having a hairy ring, the throat dilated, lateral lobes of the lower lip with a short tooth. *E. Bot.* t. 1933; *Ed. Cat.* p. 7.

Borders of fields and in hedges, plentiful. *Fl.* May—Sept. ☉.—*Leaves,* especially the upper ones, with a silky hairiness, and a purplish tinge on the floral ones.

3. L. *intermédium* Fries (*intermediate Dead-nettle*); leaves orbicular inciso-crenate the floral ones sessile, teeth of the calyx subulate longer than the tube, tube of the corolla straight with a very indistinct hairy ring within (none, *Benth.*), lateral lobe of the lower lip with a short tooth. *Reich. Ic. Bot.* t. 224, et t. 722; *Tyacke in Trans. of Bot. Soc. Ed.,* 1837, p. 27; *Ed. Cat.* p. 6.

Waste places about Edinburgh: *Mr. Tyacke, Mr. W. H. Campbell. Fl.* March—June. ☉.—Too nearly allied, I fear, to the following, to be deemed a good species.

4. L. *amplexicáule* L. (*Henbit-nettle*); leaves orbicular wrinkled inciso-crenate the floral ones sessile, teeth of the calyx lanceolate-subulate about as long as the tube, tube of the corolla straight naked within, tooth of the lateral lobes of the lower lip obsolete. *E. Bot.* t. 77; *Ed. Cat.* p. 6.

Waste places, sandy fields and gardens. *Fl.* March—June. ☉.—*Corolla* of a fine deep rose-colour, with a very slender tube.

5. L. *incísum* Willd. (*cut-leaved Dead-nettle*); leaves broadly cordate or deltoideo-cuneate deeply inciso-crenate all stalked, the uppermost crowded, teeth of the calyx subulate about as long

as the tube, tube of the corolla straight with a hairy ring within, lateral lobes of the lower lip with a short tooth. *E. Bot.* t. 1953; *Ed. Cat.* p. 6.

Cultivated and waste ground, growing very large in the Hebrides. *Fl.* May, June. ☉.

13. Betónica *Linn.* Betony.

Cal. ovate, 10-ribbed, teeth equal, awned. *Cor.* with the tube exserted, cylindrical: upper *lip* ascending; lower one patent trifid, its middle lobe entire, or nearly so.—Name altered from *Bentonie*, in Celtic; *ben*, meaning *head*, and *ton*, *good*, or *tonic*. Its properties are cephalic.

1. B. *officinális* L. (*Wood Betony*); spike interrupted short, leaves cordato-oblong crenate, middle lobe of the lower lip of the corolla somewhat notched. *E. Bot.* t. 1142. Stachys Betonica, *Ed. Cat.* p. 13.

Woods and thickets, frequent; not common in Scotland. *Fl.* July, Aug. ♃.—*Stem* 1—2 feet high, hairy; with few *leaves*, the lowermost ones on long *footstalks*, upper ones sessile. *Spikes* oblongo-ovate.

14. Stáchys *Linn.* Woundwort.

Cal. subcampanulate, 10-ribbed; teeth 5, nearly equal, acuminate. *Cor.* with the tube as long as the calyx: upper *lip* mostly arched, entire; lower one 3-lobed, with the two lateral lobes reflexed.—This genus scarcely differs from *Betonica* but in the shorter tube of its corolla.—Name: σταχυς, a *spike;* from the nature of the inflorescence.

1. S. *sylvática* L. (*Hedge Woundwort*); whorls of 6 flowers, leaves cordato-ovate acute stalked. *E. Bot.* t. 416; *Ed. Cat.* p. 13.

Woods and shady places. *Fl.* July, Aug. ♃.—2—3 feet high, hairy. *Leaves* truly cordate and tapering from below the middle to a point, in which respect it differs from the following. *Flowers* purple; *whorls* of about 6 flowers.

2. S. *ambígua* Sm. (*ambiguous Woundwort*); whorls of 6 flowers, leaves oblongo-cordate acute stalked. *E. Bot.* t. 2089. S. palustris β. ambigua, *Ed. Cat.* p. 13.

Fields and waste places. Abundant in Scotland, especially in the West Highlands. Poynings, Sussex; Leicestershire. Ireland. *Fl.* Aug. Sept. ♃.—Hairy, with soft, silky hairs, especially about the stem. Almost intermediate between the preceding and the following, probably only a *var.* of the latter. It is found in Germany and Sweden. Mr. Murphy of Belfast observes that the stem is hollow, which, he is of opinion, would afford a good distinguishing character from the preceding species.

3. S. *palústris* L. (*Marsh Woundwort*); whorls of 6 or more flowers, leaves linear-lanceolate mostly sessile and semi-amplexicaul. *E. Bot.* t. 1075; *Ed. Cat.* p. 13.

River-banks and watery or moist places, frequent. *Fl.* Aug. ♃.—Mr. Borrer finds this plant at Siddlesham, with broader shortly-stalked *leaves*, and hence approaching to *S. ambigua.*

4. S. *Germánica* L. (*downy Woundwort*); whorls many-flowered, leaves oblongo-ovate crenate densely silky, stem erect woolly. *E. Bot.* t. 829; *Ed. Cat.* p. 13.

Fields and hedges in England, on a limestone soil, and chiefly in Oxfordshire and Bedfordshire. Ducklington, Berks. *Fl.* Sept. ♃.—Remarkable for its dense covering of silky hairs or wool. Frequently cultivated in gardens.

5. S. *arvénsis* L. (*Corn Woundwort*); whorls of 6 flowers, stem weak, leaves cordate obtuse crenate slightly hairy, corolla scarcely longer than the calyx. *E. Bot.* t. 1154; *Ed. Cat.* p. 13.

Dry corn-fields, frequent. *Fl.* July, Aug. ☉.—Distinguished by its diminutive size, weak *stems*, small and obtuse mostly stalked *leaves*, and its pale purplish *corollas*, which scarcely exceed the calyx in length.

6. S. **ánnua* L. (*pale annual Woundwort*); annual erect downy, leaves oblongo-lanceolate rather acute crenato-serrate 3-nerved, the lower ones stalked, whorls of about 6 flowers spicate, cal. hairy its segments subulate, seeds roundish glossy. *Hook. in E. Bot. Suppl.* t. 2669; *Ed. Cat.* p. 13.

Fields between Gadshill and Rochester: *J. Woods, Esq.* *Fl.* Aug.

15. Népeta *Linn.* Cat-mint.

Cal. tubular, many-(15-)ribbed, its mouth a little oblique, 5-toothed. *Cor.* with the tube exserted: upper *lip* emarginate; lower 3-fid, the lateral lobes reflexed, the middle one broad concave notched.—Named, some say, from *Nepi*, a *town in Italy*; others from *Nepa*, a *scorpion*, for whose bite this plant was considered a cure.

1. N. *Catária* L. (*Cat-mint*); flowers in spiked subpedunculated whorls, leaves stalked cordate dentato-serrate. *E. Bot.* t. 137; *Ed. Cat.* p. 9.

Hedges and waste places, especially in a chalky or gravelly soil in England: rare in Scotland; hedges near Craig Nethan Castle, Glasgow, and between Culross and Kincardine. At Rathfarnan; and by the Shannon, opposite Limerick, Ireland. *Fl.* July, Aug. ♃.—*Stems* 2—3 feet high, downy, as well as the *leaves*, and whitish. *Flowers* white, tinged and spotted with rose colour. *Anthers* reddish.

16. Glechóma *Linn.* Ground-Ivy.

Cal. tubular, many-(15-)nerved, equal, 5-toothed. *Cor.* with the tube exserted: upper *lip* bifid; lower 3-lobed, middle lobe emarginate, plane. *Anthers*, before bursting, approaching in pairs and forming a cross.—Name: γληκων, applied by the Greeks to a kind of *Thyme.*

1. G. *hederácea* L. (*Ground-Ivy*); leaves reniform crenate. *E. Bot.* t. 853; *Ed. Cat.* p. 6. β. hirsuta *Benth.*: *Ed. Cat.* p. 6.

Hedges and waste places, frequent. *Fl.* Apr. May. ♃.—Plant much creeping. *Leaves* stalked, downy. *Flowers* large, in threes, axillary, blue; they were found pure white near Derby by the late Mrs. Hardcastle.

†† *Stamens included within the tube of the corolla.* (Gen. 17.)

17. MARRÚBIUM *Linn.* White Horehound.

Cal. with 10 ribs and 5 or 10 spreading teeth, the throat hairy. *Cor.* with the tube exserted; upper *lip* straight, linear, cloven; lower one 3-lobed, middle lobe the largest, emarginate. —Name of doubtful origin; some say from a town so called in Italy.

1. M. *vulgáre* L. (*White Horehound*); stem erect, leaves roundish-ovate toothed wrinkled, calyx with 10 setaceous hooked teeth. *E. Bot.* t. 410; *Ed. Cat.* p. 8.

Waste places and way-sides: frequent in England: less common in Scotland, where it is found near Edinburgh; and in Ireland. *Fl.* Aug. ♃.—1—1½ ft. high, bushy; every where hoary with a white thick pubescence or woolliness. *Flowers* small, almost white, in crowded whorls. Smell aromatic; flavour bitter. This plant has been much in use for coughs and asthmas.

** *Calyx 2-lipped.* (Gen. 18—23.)

18. A'CINOS *Mœnch.* Basil-Thyme.

Whorls few-flowered. *Cal.* 13-nerved, tubular, gibbous at the base below: upper *lip* 3-, lower 2-fid, throat hairy. *Cor.* with the upper *lip* nearly plane; lower one trifid, middle lobe nearly entire.—Name applied by the Greeks to some aromatic plant.

1. A. *vulgáris* Pers. (*common Basil-Thyme*); flower-stalks simple about 6 in a whorl, stem ascending branched, leaves oblong on short stalks acute serrated more or less ciliated at the base. Thymus Acinos *L.*: *E. Bot.* t. 411. Calamintha Acinos, *Ed. Cat.* p. 3.

Cultivated fields, especially in a gravelly, sandy, or chalky soil: rare in Scotland. Hills, North Queensferry: *Dr. Dewar. Fl.* Aug. ☉.—*Stem* 6—8 inches long. *Leaves* sometimes almost entire. *Flowers* bluish-purple. Lower *lip* of the *corolla* with the middle segment emarginate. Smell fragrant, aromatic.

19. CALAMÍNTHA *Mœnch.* Calamint.

Flowers axillary, somewhat solitary, or often in loose bracteated *cymes*. *Cal.* tubular, 13-nerved, nearly equal at the base: upper *lip* 3-toothed; lower one bifid, the throat mostly

hairy. *Cor.* with the upper *lip* nearly plane, emarginate; lower one trifid, middle lobe emarginate.—Name: καλος, *good*, and μινθα, *mint;* a plant whose scent drove away serpents.

1. C. *officinális* Mœnch (*common Calamint*); whorls on forked many-flowered stalks, leaves with shallow serratures, hairs in the mouth of the calyx not prominent. *Ed. Cat.* p. 3. Melissa Calamintha *L.* Thymus Calamintha *Scop.: E. Bot.* t. 1676.

Way-sides and borders of fields, chiefly in gravelly soils; not unfrequent in England. South of Ireland. *Fl.* July, Aug. ♃.—Plant aromatic and employed to make herb-tea.

2. C. *Népeta* Pursh (*lesser Calamint*); whorls on forked many-flowered stalks longer than the adjoining leaf, leaves serrated, hairs in the mouth of the calyx prominent. *Ed. Cat.* p. 31. Melissa Nepeta *L.* Thymus Nepeta, *E. Bot.* t. 1414.

Dry banks and way-sides, on a chalky soil, in England: plentiful. *Fl.* Aug. ♃.—"Rather smaller in all its parts than the last; especially the leaves, which are more strongly serrated. Odour strong, resembling *Mentha Pulegium*. The prominent white hairs in the mouth of the calyx distinguish this from the preceding." *Sm.* I fear this can hardly be considered really distinct from *C. officin.* My specimens of the two from the *Rev. Prof. Henslow*, gathered in Cambridgeshire, show that the serratures of the *leaves* and the hairs in the *calyx* are often the same in both.

(*Melissa officinalis* is found apparently wild by the *Rev. J. C. Collins* about Bridgewater, and by *Miss Griffiths* in N. Devon.)

20. Clinopódium *Linn.* Wild Basil.

Whorls many-flowered, with numerous linear *bracteas*, forming a sort of *involucre*. *Cal.* tubular, 13-nerved, nearly equal at the base, often curved: upper *lip* 3-toothed; lower one bifid. *Cor.* with the upper *lip* nearly plane, emarginate; lower one 3-lobed, middle lobe emarginate.—Name: κλινη, a *bed*, and πους, ποδος, a *foot;* from the compact and stalked head of flowers.

1. C. *vulgáre* L. (*Wild Basil*); leaves ovate obscurely serrated, whorls hairy, bracteas setaceous, pedicels branched. *E. Bot.* t. 1041; *Ed. Cat.* p. 3.

Hills and dry bushy places, not uncommon. *Fl.* Aug. ♃.—1—1½ feet high, with soft hairs. *Flowers* in crowded *whorls*, large, purple. Smell aromatic.

21. Melíttis *Linn.* Bastard-Balm.

Cal. with branching veins, campanulate, ample: upper *lip* 2—3-toothed; lower 2-lobed, lobes broadly ovate. *Cor.* with the tube much exserted; upper *lip* nearly flat, entire; lower one 3-lobed, lobes rounded, nearly equal.—Name: the same as μελισσα, a *bee;* from μελι, *honey;* because yielding honey to bees.

1. M. *Melissophýllum* L. (*Bastard Balm*); leaves oblongo-ovate or somewhat cordate, upper lip of the calyx with 2 or 3 teeth. — α. leaves oblongo-ovate, middle lobe of the lower lip purple with a white margin. *Ed. Cat.* p. 8. M. Melissophyllum *L. Sp. Pl.* M. grandiflora, *E. Bot.* t. 636 (*excl. syn. of Curtis*). —β. leaves broader subcordate, flowers reddish, lower lip mostly spotted with purple. M. Melissophyllum, *E. Bot.* t. 577.

Woods, coppices, and hedges in the South (Hampshire), and particularly the South-west, of England, exclusively. *Fl.* May, June. ♃. — A most beautiful plant, a foot to a foot and a half high, with ample serrated *leaves*, and large, conspicuous, often highly coloured *flowers*; but in the colour of the inflorescence, in the relative breadth of the *leaves*, and in the toothing of the calyx, very variable. The plant, when growing, is said to have a disagreeable smell; but when dried it is fragrant, like the *Anthoxanthum odoratum*, and the scent is retained for many years in the herbarium.

22. Prunélla *Linn.* Self-heal.

Cal. ovate: upper *lip* plane, more or less distinctly 3-toothed; lower one bifid. *Cor.* with the upper *lip* nearly entire, arched; lower one 3-lobed. *Filaments* with two teeth at the extremity, one bearing the *anther*. — Named from the German, *braüne*, the *quinsy*, whence comes *Brunella* of Ray, softened into *Prunella*.

1. P. *vulgáris* L. (*Self-heal*); leaves stalked oblongo-ovate, upper lip of the calyx truncated, its teeth almost obsolete. *E. Bot.* t. 961; *Ed. Cat.* p. 11.

Moist and barren pastures, frequent. *Fl.* July, Aug. ♃. — *Flowers* very densely whorled, so as to form an imbricated oblong *spike*, with a pair of *leaves* at its base, and a pair of broad *bracteas* beneath each *whorl*. *Cor.* violet-blue, its lower *lip* finely toothed at the margin.

23. Scutellária *Linn.* Skull-cap.

Cal. broadly ovate, having a conspicuous concave tooth or scale on the upper side; its 2 nearly equal entire *lips* closed after flowering. *Cor.* with the tube much exserted: upper *lip* straight, arched; lower one trifid. — Named from *scutella*, a *little dish* or *cup*, which the calyx with its appendage or ear somewhat resembles.

1. S. *galericuláta* L. (*common Skull-cap*); leaves lanceolate cordate at the base crenate, flowers axillary in pairs. *E. Bot.* t. 523; *Ed. Cat.* p. 13.

Banks of rivers and lakes, especially in stony places. *Fl.* July, Aug. ♃. — 8 or 10 inches to a foot high. *Flowers* rather large, blue, downy.

2. S. *mínor* L. (*lesser Skull-cap*); leaves oblongo-ovate on very short stalks entire cordate at the base, flowers axillary in pairs. *E. Bot.* t. 524; *Ed. Cat.* p. 13.

Moist heathy places and by the sides of lakes; less frequent than the preceding. Bog between Luss and Helensburgh, Dumbartonshire: *F. Adamson, Esq.* *Fl.* July, Aug. ♃. — 4—6 inches high. Lower

leaves sometimes with one or two teeth at the base, and hence subhastate; upper ones much narrower and quite entire. *Flowers* pale-reddish, almost white. Lower *lip* spotted.

Ord. LXII. VERBENACEÆ *Juss.*

Calyx tubular, persistent. *Corolla* monopetalous; *tube* elongated; *limb* irregular, 4—5-lobed. *Stamens* 4, didynamous or 2. *Ovary* 2—4-celled, 2—4-seeded. *Style* 1. *Stigma* bifid or entire. *Capsule* (indehiscent?) or *berry* with 2—4 nucules. *Albumen* 0. — Trees *or* shrubs *or* herbaceous *plants.* Leaves *generally opposite.* — The *Teak* of the East Indies, the timber of which is so extensively employed in ship-building, is of this Natural Family.

1. Verbéna *Linn.* Vervain.

Cal. tubular, with 5 teeth, one of them generally shorter than the rest. *Cor.* tubular, with the *limb* rather unequal, 5-cleft. *Stamens* included (sometimes only 2). *Seeds* 2 or 4, enclosed in a thin evanescent pericarp. — Name: *ferfaen* in Celtic; derived from *fer,* to *drive away,* and *faen,* a *stone,* from having been supposed to cure the complaint so called. *Théis.*

1. V. *officinális* L. (*common Vervain*); stamens 4, stem erect somewhat hispid, leaves rough lanceolate inciso-serrate or trifid with the segments cut, spikes filiform somewhat panicled, flowers rather remote. *E. Bot.* t. 767; *Ed. Cat.* p. 14.

Road-sides and waste ground, frequent in England. Rare in Ireland. Inverkeithing, Scotland. *Fl.* July. ♃.

Ord. LXIII. LENTIBULARIÆ *Rich.*

Calyx divided. *Corolla* irregular, 2-lipped, with a spur. *Stamens* 2, from the base of the corolla. *Anthers* single. *Ovary* 1-celled. *Style* short. *Stigma* of 2 plates. *Capsule* with a large central receptacle, bearing many *seeds,* which are very minute, without *albumen.* — *Small,* herbaceous, marsh plants, *with undivided and all radical leaves, or* aquatic plants *with compound root-like leaves bearing bladders.*

1. Pinguícula *Linn.* Butterwort.

Cal. 2-lipped, upper lip of 3, lower of 1, bifid segment. *Cor.* ringent, spurred. *Germen* globose. *Stigma* large, of 2 unequal plates or lobes. *Caps.* 1-celled. *Seeds* attached to a central receptacle. — Named from *pinguis, fat;* the leaves being thick and greasy to the touch.

1. P. *vulgáris* L. (*common Butterwort*); spur subulato-cylindrical, as long as the veinless limb of the corolla, whose segments

Stellaria graminea
Mottingham Lane
May

Ajuga reptans
Mottingham Lane
May

are very unequal rounded even and all entire. *E. Bot.* t. 70; *Ed. Cat.* p. 10.

Bogs, moist banks, and heaths; most abundant in the North. *Fl.* June. ♃. — *Foliage* radical, covered with minute raised crystalline points, fleshy, the margins involute. *Scapes* single-flowered. *Flowers* purple, very handsome, drooping; palate covered with white, compactly jointed hairs. *Anthers* 1-celled, vertical, placed just beneath the large horizontal plate or lobe of the *stigma*. *Style* short. *Caps.* ovate, 1-celled, bursting half-way into 2 valves. *Seeds* numerous, oblong, rough. — The leaves are said to coagulate milk, whence the English name.

2. P. *grandiflóra* Willd. (*large-flowered Butterwort*); spur notched subulato-cylindrical as long as the veined limb of the corolla whose segments are very unequal truncated, the middle one of the lower lip notched. *E. Bot.* t. 2184; *Ed. Cat.* p. 10.

Western part of the county of Cork, in marshy ground; and at Kenmare. *Fl.* May. ♃. — This plant, apparently as rare upon the Continent as in Britain, and perfectly distinct from *P. vulgaris*, may be easily cultivated for a succession of years. As in the *P. vulgaris*, the old leaves die away in winter, and buds or hybernacula are formed, which expand into perfect individuals in the spring. Few plants can exhibit a more beautiful appearance, early in the year, than a cluster of *P. grandiflora*, blossoming under the shelter of a common frame. It is a mass of large deep and rich purple-coloured flowers, well contrasted with the pale but bright hue of the leaves.

(There is a "P. longicornis *Gay?*" given in *Ed. Cat.* as a species new to Britain, but I am unacquainted with it.)

3. P. *alpina* L. (*alpine Butterwort*); spur conical shorter than the unequal limb of the corolla and curved towards the lower retuse lip, scape glabrous. *Grah. in E. Bot. Suppl.* t. 2747; *Hook. Br. Fl.* ed. 3. p. 10; *Ed. Cat.* p. 10.

Bogs in Scotland, very rare. Isle of Skye: *Mr. James Mackay*, in Smith's Herb. (*Graham.*[1]) Bogs of Aughterflow and Shannon, on the Rose Haugh property, Ross-shire: *Rev. G. Gordon. Fl.* June. ♃. — *Leaves* and *flowers* about the size of *P. Lusitanica;* but the texture of the foliage most resembles that of *P. vulgaris. Corolla* yellowish, within on the under-side is a tuft of deep-yellow crystalline hairs. *Spur* remarkably short and conical, curved towards the lower lip of the corolla.

4. P. *Lusitánica* L. (*pale Butterwort*); spur cylindrical obtuse decurved shorter than the almost equal limb of the corolla, leaves veiny and as well as the scape hairy. *E. Bot.* t. 145; *Ed. Cat.* p. 10.

Marshy places and wet moors, mostly confined to the west side of the kingdom: never, I believe, found on the east side, and rarely in the interior. Plentiful in the Hebrides and Ireland: but most abundant in

[1] Dr. Graham says, *l. c.*, "I understand there are two specimens in the Herbarium of Sir J. E. Smith, upon the same paper with *P. Lusitanica*, marked as sent to him by *Mr. James Mackay*, in September, 1794, from the Isle of Skye."

the extreme north of Scotland, near Cape Wrath, growing among *Jungermannia cochleariformis* and *Arbutus alpina*. *Fl.* June, July. ♃.

2. Utriculária *Linn.* Bladderwort.[1]

Cal. 2-leaved, equal. *Cor.* personate, spurred. *Stigma* 2-lipped. *Caps.* globose, of 1 cell; *Seeds* fixed to a central receptacle. — Named from *utriculus*, a *little bladder*.

1. U. *vulgáris* L. (*greater Bladderwort*); spur conical, upper lip as long as the projecting palate, leaves pinnato-multifid. *E. Bot.* t. 253.

Ditches and deep pools, not unfrequent. *Fl.* June, July. ♃. — *Roots* much branched. *Shoots* or *runners* floating horizontally in the water, clothed with capillary multifid *leaves*, bristly at the margin and bearing little crested bladders. *Scape* erect, 4—6 inches high, with 6—8 bright yellow *flowers* in a raceme. Lower *lip* convex, much larger and broader than the upper one, and having a projecting palate closing the mouth. *Spur* short, deflexed. *Filaments* curved, thick, resembling those of *Pinguicula*. *Stigma* large.

2. U. *intermédia* Hayne (*intermediate Bladderwort*); spur conical, upper lip twice as long as the palate, leaves tripartite, their segments linear dichotomous. *E. Bot.* t. 2489.

Ditches and deep pools, much less frequent than the preceding. Scotland Heath, Corfe Castle, Dorset: first observed by *Mr. Woods*. About Dublin and Bantry in Ireland, and in Rescobie Lake, Forfar; also near Elgin. *Fl* June, July. ♃. — This has probably been passed by as the *U. vulgaris;* but its *flowers* are smaller, of a paler yellow, and have a longer *lip*. The *stems* are more leafy, and the bladders arise from branched stalks, not from the leaves. It propagates itself by buds or gemmæ which proceed from the ends of the shoots, as does *U. minor*, and perhaps *U. vulgaris*. At the season of flowering, *Mr. Borrer* finds the vesicles all immersed in the mud, and the leafy shoots floating under water.

3. U. *minor* L. (*lesser Bladderwort*); spur extremely short obtuse keeled, upper lip as long as the palate, leaves subtripartite, the segments linear dichotomous. *E. Bot.* t. 254.

Ditches and pools, rare; though not unfrequent in many parts of Scotland, extending its range even to Skye. *Fl.* June, July. ♃.— Smaller than the last. *Vesicles* mixed with the leaves, which latter are glabrous at the margin. *Flowers* very pale yellow, and small. *Spur*

[1] The British species of this genus are all aquatics: and their roots, stems, and even leaves, are furnished with numerous, membranaceous, reticulated *vesicles*, which, according to Hayne, are filled with water, till it is necessary the plant should rise to the surface and expand its blossoms above that fluid. The vesicles are then found to contain only air, by aid of which the plant floats: this air again in autumn gives place to water, and the plant descends to ripen its seeds at the bottom. Mr. Wilson observes, on the bladders of *U. vulgaris*, that "they have *an orifice closed by an elastic valve, opening inwards*, and of much thinner texture than the bladder, to which it is attached, where the crest is placed. Aquatic insects often enter these bladders, and are, of course, confined there."

scarcely any. Lower *lip* almost plane; palate scarcely closing the mouth, not projecting beyond the lip.

Ord. LXIV. PRIMULACEÆ *Vent.*

Calyx 5-cleft (wanting in *Glaux.*) *Corolla* regular, 5-lobed. *Stamens* 5 (in *Trientalis* about 7), opposite to the lobes of the corolla. *Ovary* 1-celled. *Style* 1. *Stigma* capitate. *Capsule* with peltate *seeds* upon a free central *receptacle.* *Embryo* transverse, in a fleshy *albumen.*—Herbaceous plants, *chiefly of the colder and temperate regions.*

1. Anagállis *Linn.* Pimpernel.

Cal. 5-partite. *Cor.* rotate. *Stamens* hairy. *Capsule* bursting all round transversely. — Named from αναγελαω, to *laugh.* Pliny says the *Anagallis* excites pleasure, and Dioscorides that it removes those obstructions of the gall which create sadness.

1. A. *arvénsis* L. (*scarlet Pimpernel* or *Poor Man's Weather-glass*); leaves ovate sessile dotted beneath, margin of the corolla crenate piloso-glandulose. *E. Bot.* t. 529; *Ed. Cat.* p. 1.—β. *cærulea;* margins of the corolla toothed scarcely at all glandulose. A. cœrulea *Schreb.: E. Bot.* t. 1823; *Ed. Cat.* p. 1.

Corn-fields, frequent. β. not rare in similar situations. *Fl.* June, July. ☉.—*Flowers* generally bright scarlet, sometimes blue, and Mr. Dillwyn Llewellyn has found, at Penllegare, S. Wales, specimens with the flowers pure white, and a small, well defined, bright purplish-pink eye in the centre of every corolla. The Rev. Professor Henslow has proved, by cultivation from seed, that *A. cærulea* and *A. arvensis* are varieties of the same species.

2. A. *tenélla* L. (*Bog Pimpernel*); stem creeping filiform, leaves ovate or roundish stalked. *E. Bot.* t. 530; *Ed. Cat.* p. 1.

Wet mossy bogs: frequent in England, more rare in Scotland. *Fl.* July, Aug. ♃.— A beautiful little plant, as are all of this Genus, 2—4 inches long. *Leaves* small. *Flowers* large in proportion to the size of the plant, on rather long footstalks. *Cor.* pink.

2. Lysimáchia *Linn.* Loosestrife.

Cal. 5-partite. *Cor.* rotate. *Stam.* not distinctly hairy. *Caps.* 1-celled, 10-valved.— Named in honour of king *Lysimachus,* according to some; according to others, from λυσις, a *dissolving,* and μαχη, *battle.* The English name, it will be at once seen, has a similar meaning. Pliny says it tames restiff horses.

1. L. *vulgáris* L. (*great yellow Loosestrife*); leaves ovato-lanceolate opposite or ter-quaternate, panicle many-flowered terminal. *E. Bot.* t. 761; *Ed. Cat.* p. 8.

Sides of rivers and wet shady places: less frequent in Scotland. *Fl.* July. ♃. — Erect, 2—3 feet high. *Leaves* nearly sessile, glabrous or downy beneath. *Panicle* large, leafy, much branched. *Corollas* large, yellow, handsome. I omit *L. punctata* L. in the present ed. of the Flora: its existence on the banks of the Skerne not having been confirmed, and probably a var. of *L. vulgaris* was taken for it.

2. L. *thyrsiflóra* L. (*tufted Loosestrife*); leaves opposite lanceolate, racemes many-flowered stalked lateral. *E. Bot.* t. 176; *Ed. Cat.* p. 8.

Wet marshes and water-sides, very rare in England; Yorkshire, Hertfordshire, and Anglesea. More frequent in Scotland: near Forfar, and at Duddingston Loch on the east: canal-side near Possil, and near Rossdhu, by Loch Lomond, in the former place most abundant, and growing in the water. *Fl.* July. ♃.—1—2 feet high. *Flowers* numerous, small, collected into dense, axillary, peduncled *racemes*. Number of the parts of the flower very variable. *Cor.* deeply cut into very narrow segments, yellow, and as well as the *cal.* spotted with orange.

3. L. *némorum* L. (*yellow Pimpernel* or *Wood Loosestrife*); leaves ovate acute, stem creeping, peduncles 1-flowered solitary, calycine segments linear-subulate, stamens smooth. *E. Bot.* 527; *Ed. Cat.* p. 8.

Woods and shady places, frequent. *Fl.* during the summer months. ♃.

4. L. *Nummulária* L. (*creeping Loosestrife, Money-Wort,* or *Herb-Twopence*); leaves subcordate or ovate obtuse, stem prostrate, peduncles 1-flowered solitary, calycine segments ovate acute, filaments glandular. *E. Bot.* t. 528; *E. Fl.* v. i. p. 279; *Ed. Cat.* p. 8.

Shady places and pastures. *Fl.* June, July. ♃.

3. Cyclamen *Linn.* Sow-bread.

Cal. campanulate, half-5-cleft. *Cor.* rotate, the mouth prominent, the segments reflexed. *Caps.* globose, 1-celled, opening with 5 teeth. — Named from κυκλος, a *circle*, probably from the circles formed by the spiral peduncles; in French, *Pain de Porçeau*, and in English *Sow-bread*, because the large tuberous roots are eagerly sought by swine, notwithstanding their highly acrid nature.

1. C. **hederæfólium* Willd. (*Sow-bread*); "leaves heart-shaped angular finely toothed their ribs and footstalks roughish. *E. Fl.* v. i. p. 273; *Ed. Cat.* p. 4. C. Europæum, *E. Bot.* t. 548.

On a bank at Bramfield, Suffolk. Sandhurst Green and Goudhurst, Kent. *Fl.* April. ♃.—*Leaves* springing from the top of the large tuberous *root*. *Cor.* white or flesh-coloured. *Scapes* spirally twisted after flowering, so as to bury the *seed-vessels* in the earth.

4. Hottónia *Linn.* Water-Violet.

Cal. 5-partite. *Cor.* salver-shaped, with a short *tube*. *Stamens* inserted at the mouth of the tube. *Stigma* globose. *Caps.* globose (valveless, *Spr.*) opening with 5 teeth.—Named after *Pierre Hotton*, a professor at Leyden during the latter half of the 17th century.

1. H. *palústris* L. (*common Water-Violet* or *Featherfoil*); flowers whorled on a long solitary cylindrical stalk, corolla longer than the calyx, leaves pectinated. *E. Bot.* t. 364; *Ed. Cat.* p. 7.

Ditches and pools in England: not found in Scotland. Downpatrick, Ireland. *Fl.* June. ♃.—*Root* creeping. *Leaves* all submerged. *Flowers* large, handsome, pale purple, rising above the water.

5. Prímula *Linn.* Primrose.

Cal. tubular, 5-toothed. *Cor.* salver-shaped, its *tube* cylindrical, its mouth open. *Caps.* opening with 10 teeth.—Named from *primus, first*, on account of the early appearance of the flowers in the more common species: in France *Primevère.*

1. P. *vulgáris* Huds. (*common Primrose*); leaves toothed wrinkled, scape single-flowered, limb of the corolla flat. *E. Bot.* t. 4. P. acaulis *All.*: *Ed. Cat.* p. 10. P. veris γ. acaulis *Linn.*

Woods, hedge-banks, and pastures, abundant. *Fl.* April, May, and till June on the mountains of Scotland. ♃.—If the *scapes* are traced to their very base, they will be found to spring from one common point, and to constitute a sessile *umbel*. The Rev. G. E. Smith finds the flowers sometimes with styliferous filaments.

2. P. *elátior* Jacq. (*Oxlip Primrose*); leaves toothed wrinkled contracted below the middle, scape umbellate, limb of the corolla flat. *E. Bot.* t. 513; *Ed. Cat.* p. 10. P. veris β. elatior *Linn.*

Woods and thickets, not common; still rarer in Scotland. About Dublin. *Fl.* Apr. May. ♃.—Mr. Wilson finds specimens of this with some *scapes* bearing solitary and others umbellate *flowers*; so that whatever may be thought of the following species, this cannot be considered really distinct from *P. acaulis.*

3. P. *véris* L. (*common Cowslip* or *Paigle*); leaves toothed wrinkled contracted below the middle, scape umbellate, calycine teeth obtuse, limb of the corolla concave. *E. Bot.* t. 5; *Ed. Cat.* p. 10. P. veris α. officinalis *Henslow.*

Meadows and pastures, frequent in a clayey soil in England: very rare in Scotland. Near Edinburgh. Introduced about Glasgow. *Fl.* Apr. May. ♃.—Various are the opinions respecting the above 3 *Primulas*, as to the permanence of their specific characters. Professor Henslow has seen them all produced from the same root: and thus, in his useful little *Catalogue of British Plants arranged according to the Nat. System*, has reduced them to *vars.* of *P. veris*, as Linnæus had

done. Few plants, however, can be more constant to the characters here laid down than these are, as generally seen growing in their wild stations. They rarely are found intermixed, and in Scotland the last two kinds are scarcely known. Mr. H. Watson, however, says: "My wild British specimens render it impossible to characterise 3 species clearly; but two may be pretty accurately distinguished, each having a variety '*elatior*.' Independently of the other characters, all the *Cowslips* and *Cowslip-Oxlips* have the scape and calyx *tomentose*, whilst *Primroses* and *Primrose-Oxlips* have long soft hairs, and should be called villose or shaggy."

4. P. *farinósa* L. (*Bird's-eye Primrose*); leaves obovato-lanceolate mealy crenulated, calyx oblongo-ovate, limb of the corolla plane its mouth obscurely glandular, the segments obcordate distant attenuated at the base "nearly as long as the tube." *E. Bot.* t. 6; *Ed. Cat.* p. 10.

Mountainous pastures in the North of England, especially Yorkshire, not unfrequent. Very rare in Scotland; only seen, I believe, south of Edinburgh: the stations given in *Fl. Scotica* all belonging to the following species. Not found in Ireland. *Fl.* June, July. ♃. — One of the most elegant of plants, scarcely yielding in beauty to the next species. The powdery substance on the leaves, scape, and calyx, has a musky smell. *Flowers* pale lilac-purple, with a yellow eye.

5. P. *Scótica* Hook. (*Scottish Primrose*); leaves obovato-lanceolate mealy denticulate, calyx ventricose, limb of the corolla flat its mouth glandular, the segments broadly obcordate approximate "half the length of the tube." *Hook. in Fl. Lond.* n. s. t. 133. *and in E. Bot. Suppl.* t. 2608; *Ed. Cat.* p. 10.

North coast of Caithness, discovered by *Mr. W. Gibb* of Inverness. Frequent also on the north coast of Sutherland, and in the Orkney Islands; growing upon the sandy shores. *Fl.* July. ♃. — A most distinct and rare species of Primrose, not half the size of the preceding, but with a stouter habit. *Flowers* deep bluish-purple, with a yellow eye. In *P. farinosa*, the *germen* is broadly obovate and the *stigma* capitate: here the *germen* is globose, and the *stigma* has 5 points. Dr. Graham first observed the difference in the relative length of the segments of the corolla, a character which he thinks may be advantageously employed in distinguishing other allied species of *Primula*. This has no affinity with *P. stricta* of Hornemann, to which Smith, though doubtfully, referred it; nor have I yet seen specimens from any country save the North of Scotland.

6. Centúnculus *Linn.* Chaffweed.

Cor. tubular, 4-partite. *Stam.* short. *Caps.* of 1 cell, many-seeded, bursting all round transversely. — Name, it appears, anciently given to the *Pimpernel*, a genus allied to this; and derived, according to Théis, from *cento*, a *covering*, because it was a little weed that covered the cultivated fields.

1. C. *minimus* L. (*small Chaffweed* or *Bastard Pimpernel*); flowers sessile, corolla without glands at the base. *E. Bot.* t. 531; *Ed. Cat.* p. 3.

Moist sandy or gravelly places about London, in Kent, Bedfordshire, Norfolk, Suffolk, the South of Ireland, and Lowlands of Scotland; not frequent: probably, however, often overlooked on account of its small size. *Fl.* June, July. ⊙. — Plant 1—2 inches high, more or less branched. *Leaves* alternate, ovate, glabrous. *Flowers* extremely minute, sessile, axillary, solitary. *Cor.* pale rose colour, withering.

7. Trientális *Rupp.* Chickweed Winter-green.

1. T. *Europæa* L. (*European Chickweed Winter-green*); leaves oblongo-obovate obtuse. *E. Bot.* t. 15; *Hook. in Fl. Lond.* n. s. t. 161; *Ed. Cat.* p. 14.

Woods in the North of England, but rare. Abundant in many parts of the Highlands of Scotland. Not found in Ireland. *Fl.* June. ♃. — *Root* filiform, creeping. *Stems* 4—6 inches high, with 2 or 3 small, distant *leaves*, and 4—7 terminal whorled larger ones; from the centre of which arise 1—4 slender single-flowered *peduncles*. *Cal.-leaflets* almost subulate, varying in number from 6 to 9, as do all the other parts of the flower and the valves of the capsule. The *fruit* had always been misunderstood, till Sir J. E. Smith described it in Rees' Cyclopædia. The beautiful covering, like the finest white lace, of its *seeds*, had been taken for a pericarp; because few botanists had seen the very fugacious horny *valves* of its *capsule*. (*See Fl. Lond.* n. s. t. 161.) This is assuredly one of the most interesting of our Highland vegetable productions; and, like *Butomus*, is the only British example of a plant of its Class.

8. Sámolus *Linn.* Brookweed.

Cal. 5-cleft. *Cor.* salver-shaped, its *tube* short, with 5 scales (imperfect *stamens*) at its mouth, alternating with the lobes. *Capsule* half-inferior, 1-celled, many-seeded, opening with 5 valves. *Seeds* upon a large central free receptacle. — Named, some say, from the Island of Samos, where *Valerandus*, a botanist of the sixteenth century, is alleged to have gathered our *Samolus Valerandi*.

1. S. *Valerándi* L. (*Brookweed* or *Water Pimpernel*); leaves obtuse, racemes many-flowered, pedicels with a small bractea. *E. Bot.* t. 703; *Ed. Cat.* p. 12.

Marshy and watery places, especially in a gravelly soil. *Fl.* July. ♃. — This plant is very generally dispersed throughout the world. *Stem* 8—10 inches high, rounded, glabrous, as well as the ovate, subpetiolate, entire, fleshy *leaves*. *Flowers* small, white. *Cal.* small, 5-cleft, persistent; the segments crowning the rounded *capsule*.

9. Glaux *Linn.* Sea-Milkwort.

Perianth single, inferior, campanulate, coloured, of 1 piece, 5-lobed. *Caps.* globose, 1-celled, 5-valved, with about 5 *seeds*. — Named from γλαυκιον, a plant so called from its *sea-green* colour, or because it grew near the sea.

1. G. *marítima* L. (*Sea-Milkwort* or *black Saltwort*). *E. Bot.* t. 13; *Ed. Cat.* p. 6.

Sea-shore and muddy salt-marshes, abundant. *Fl.* July. ♃.—*Stems* 2—4 or 5 inches long, stout, branched, often procumbent. *Leaves* opposite, ovate, glabrous, fleshy, entire, sessile, small. *Flowers* sessile, solitary, axillary, rose-coloured, with 5 obtuse, spreading lobes.

Ord. LXV. PLUMBAGINEÆ *Juss.*

Calyx tubular. *Corolla* regular (in *Statice* almost polypetalous). *Ovary* single. *Styles* 1—5. *Capsule* (indehiscent?) 1-seeded. *Seed* inverted from the apex of a stalk arising from the base of the cell. *Albumen* farinaceous. — *Herbaceous* or *somewhat shrubby* plants. Flowers *often capitate or spiked.*

1. Státice *Linn.* Thrift.

Cal. of 1 piece, funnel-shaped, plaited, dry and membranaceous. *Pet.* 5, united at the base, bearing the stamens. *Capsule* with 1 seed invested with the calyx. — Named from στατιζω, to *stop;* from its supposed qualities in checking dysentery.

* *Flowers collected into a rounded head.* (Armeria *De Cand.*)

1. S. *Arméria* L. (*common Thrift* or *Sea-Gilliflower*); leaves linear, scape simple bearing a rounded head, awns of the calyx short. *E. Bot.* t. 226. Armeria maritima *Willd.: Ed. Cat.* p. 2. β. alpina, *Ed. Cat.* p. 2.

Muddy sea-shores, among rocks by the sea-side and upon the tops of our highest mountains. *Fl.* July, Aug. ♃. — *Leaves* all radical, numerous. *Heads* of *flowers* rose-coloured (white in Cornwall: *G. E. Smith*), intermixed with scales, and having, besides, a brown, membranous, 3-leaved *involucre*, terminating below in a sheathing jagged covering to the upper part of the scape.

2. S. *plantaginea* All. (*Plantain-leaved Thrift*); leaves linear-lanceolate 3—5 nerved, scape simple bearing a rounded head, leaves of the involucre cuspidate, awns of the calyx long. *All. Pedemont.* n. 1606. S. scorzonerifolia *Willd.* S. cephalotes *Ait.* Armeria alliacea *Willd.: Reich. Ic.* t. 966. A. plantaginea *Willd.: Ed. Cat.* p. 2.

Found in August, 1833, growing abundantly in the sandy district of Quenvais, on the west side of the Island of Jersey: *W. C. Trevelyan, Esq. Fl.* June, July. ♃. — Other synonymes might probably with safety be brought, could we compare our plant (which is certainly the *S. plantaginea* of the French, Swiss, and, I think, the German botanists) with authentic specimens. It is readily distinguished from *S. Armeria* by the strongly cuspidate involucre, broad leaves, and long setaceous teeth to the calyx. *Flowers* pale purple.

** *Flowers unilateral on a paniculated scape.*

3. S. *Limónium* L. (*spreading-spiked Thrift* or *Sea-Lavander*); leaves elliptic-lanceolate stalked mucronate single-ribbed, scape angular with a much branched spreading corymb at the top,

calyx with deep acute plaited segments and intermediate teeth. *E. Bot.* t. 102; *Ed. Cat.* p. 13.

Frequent on the muddy shores and salt-marshes of England and Ireland: rare in Scotland, and confined, I believe, to the southern coasts. *Fl.* July, Aug. ♃. — *Leaves* 4 inches to a span high, ½ or ¾ as tall as the scape, single-ribbed with lateral oblique veins, mucronated: the mucro is recurved, being "a continuation of the margin of the leaf, and is channelled. *Scape* angular, often furrowed above, with a coarse uneven surface." *Panicle* truly corymbose and level-topped, with spreading or sometimes recurved branches, in which respect it differs remarkably from the following species. *Cal.*, as Mr. Wilson observes, "with deep ovato-oblong, toothed, acute, spreading segments, reflexed in the margin and with intermediate teeth. *Anthers* yellow. *Pollen* with 3 pellucid dots, compressed. *Germen* granulated. *Stigmas* rough with prominent but minute papillæ." — Notwithstanding the similarity of appearance in the blue blossoms of this plant to those of the Lavander, it is still but

"The sea-lavander, 'which lacks perfume.'" — CRABBE.

4. S. *spathuláta* Desf. (*upright-spiked Thrift*); leaves spathulate more or less mucronate glaucous 3-nerved at the base, scape branched from below the middle, panicle elongated, branches distichous, spikes erect, calyx with plane blunt segments without intermediate teeth. *Desf. Fl. Atl.* v. i. p. 275; *Sims, Bot. Mag.* (excellent); *Ed. Cat.* p. 13. S. cordata *G. E. Smith in Cat. of Pl. of Kent*, p. 18. t. 2. f. 2. (*vix Linn.*) S. binervosa *G. E. Smith in E. Bot. Suppl.* t. 2663. S. Limonium *β.*, *E. Fl.* v. ii. p. 116. S. Dodarti *Girard in Ann. die Sc. Nat. Bot.* v. 17. p. 31. and S. densiflora *ejusd.*, p. 25?

Coast of Kent in several places. Harwich. Rocks near Holyhead; and St. Bees' Head, near Whitehaven. Devon. Somerset. Mull of Galloway, Scotland. Dublin, and N. of Ireland. Jersey and Guernsey. *Fl.* Aug. ♃. — Much credit is due to the Rev. G. E. Smith, who published this plant in 1829, and clearly distinguished it from *S. Limonium;* and no less to Mr. W. Wilson and Mr. Goldie, both of whom had previously sent it to me as distinct from *S. Limonium:* though they at first fell into the very natural error of considering it to be the *S. reticulata.* Mr. Wilson has so well recorded its discriminating characters in a letter to me of August, 1828, that I should do him injustice were I not to introduce them here. "The *leaves* (which are coriaceous and short in proportion to the height of the scape), have the *midrib* somewhat pellucid when held between the eye and the light; and there are, besides, two parallel *ribs* or *nerves* extending beyond the middle; *footstalks* bordered, so as to constitute of the whole a spathulate leaf. *Mucro* very small, always dorsal, not formed of a continuation of the (cartilaginous) margin, for that is continued round the apex of the leaf, and above the mucro, which is not channelled. *Scape* round, with an even surface, a little zigzag or wavy above, taking a fresh direction at every branch of the panicle. *Anthers* white. *Pollen* with 4—5 pellucid dots, compressed. *Germen* smooth. *Stigmas* covered with a reticulation of vesicles, not prominent, much larger than the papillæ of *S. Limonium.*" The lower branches of the panicle are now and then abortive, or destitute of flowers, in both species. In regard to the

name I have here adopted, the plant quite agrees with the *S. spathulata* of Desf., and the figure of Dr. Sims in *Bot. Mag.* is very characteristic. It is the same as what I have received from St. Lucci, near Narbonne, as *S. auriculæfolia*, but that is referred, by Girard, to his *S. densiflora*.

5. S. *reticuláta* L. (*matted Thrift*); leaves spathulate, scapes paniculated almost from the base with numerous slender zigzag distinctly bracteated branches, of which the upper ones only bear flowers, flowers crowded. *E. Bot.* t. 328; *Ed. Cat.* p. 13.

Muddy salt-marshes, but rare. Norfolk, principally at Cley, and Wisbeach. *Fl.* July, Aug. ♃.—Much smaller than either of the two last; with very short *leaves*. *Scapes* several from the same root, remarkable for their numerous, slender, entangled, barren branches, and small crowded *flowers*, in secund terminal *spikes*. The finest specimens I have seen of this species were sent to me by Professor Henslow from Cley, gathered July 1829. They are 6 inches long and with such numerous barren branches as to satisfy me that the *S. Caspia* of Willdenow is the same; as Marschal Bieberstein had rightly determined.

Ord. LXVI. PLANTAGINEÆ *Juss.*

Sometimes monœcious. *Calyx* with 4 segments. *Corolla* 4-lobed. *Stamens* 4, alternate with the segments of the *corolla*. *Filaments* exserted. *Ovary* with the *style* and *stigma* simple, the latter rarely divided. *Capsule* opening transversely, 1- 2- or 4-celled. *Seeds* peltate, on the dissepiments. *Embryo* in a fleshy or horny *albumen*.—*Slightly bitter and astringent.* Seeds *mucilaginous*.

1. Plantágo *Linn.* Plantain.

Cor. 4-cleft, the segments reflexed. *Stam.* very long. *Caps.* of 2 cells, 2- or many-seeded, bursting all round transversely.—Name of doubtful origin. All the species are mucilaginous and astringent.

1. P. *májor* L. (*greater Plantain*); leaves broadly ovate mostly on longish footstalks, scape rounded, spikes long cylindrical, dissepiment of the capsule plane, each cell many-seeded. *E. Bot.* t. 1558; *Ed. Cat.* p. 10. β. microstachya *Koch: Ed. Cat.* p. 10.

Pastures and road-sides, frequent. *Fl.* June, July. ♃.—*Leaves* all radical, more or less spreading, with 7 nerves, entire or toothed, glabrous or pubescent. *Petioles* varying in length, sometimes as long as the leaf, ribbed. *Spike* dense. At the base of each flower is a concave *bractea*. *Cal.* of 4 minute *leaflets*. *Caps.* ovate, with 6 or 8 *seeds* in each cell.

2. P. *média* L. (*hoary Plantain*); leaves ovate sessile or tapering into short and broad footstalks, scape rounded, spike cylindrical, dissepiment of the capsule plane, each cell 1-seeded. *E. Bot.* t. 1559; *Ed. Cat.* p. 10.

Meadows and pastures, less frequent in Scotland. *Fl.* June, July. ♃. — *Stamens* long, with dark purple *filaments*. *Spike* shorter than in *P. major*, and more silvery from the shining scariose *corollas;* but a more essential difference exists in the *cells* of the *capsule*, which are only 1-seeded.

3. P. *lanceoláta* L. (*Ribwort Plantain*); leaves lanceolate, scape angular, spike ovate or ovato-lanceolate, dissepiment of the capsule plane, each cell 1-seeded. *E. Bot.* t. 175; *Ed. Cat.* p. 10. — β. γ., *Ed. Cat.* p. 10.

Meadows and pastures, often too abundant. *Fl.* June, July. ♃.—The *leaves* and *scape* are observed by Mr. S. Murray to yield strong fibres. The spike has its bracteas occasionally, by luxuriance, converted into leaves; and sometimes a new scape and spike grow out horizontally from among the bracteas. Lightfoot mentions a *var.* with globular heads: this is probably the same as I have found at a considerable elevation upon the mountains of Scotland, with short *leaves*, long and slender *scapes*, hairy and scarcely angular, with small dark brown almost globular *heads*, and the *bracteas* more or less hairy. This is hardly different from the *P. montana* of authors.

4. P. *marítima* L. (*Sea-side Plantain*); leaves linear grooved fleshy woolly at their base, scape rounded, spike cylindrical, dissepiment of the capsule plane, each cell 1-seeded. *E. Bot.* t. 175; *Ed. Cat.* p. 10. — β. *major;* leaves almost plane inclining to lanceolate toothed glabrous, scape densely hairy. — γ. *minor;* leaves linear-lanceolate densely hairy as well as the scape.

Grassy pastures by the sea-side; frequent near the margin of fresh-water lakes and on the *bases* of mountains sloping down to them, as by Loch-Lomond, also on the *summits* of the highest mountains. — β. On the island of Cumrae, among rocks. — γ. Among rocks by the House of Skail, Pomona, Orkney: *G. Anderson, Esq.* *Fl.* June—Sept. ♃. —Varying much in size and in the breadth and hairiness of its *leaves* and *scapes:* sometimes the *leaves* are almost filiform, often lanceolate; in the curious *var.* found by Mr. Anderson, they are clothed with short dense hairs; always very succulent.

5. P. *Corónopus* L. (*Buck's-horn Plantain*); leaves linear pinnatifid, scape rounded, dissepiment of the capsule with 4 angles (thus forming 4 cells), 1 seed in each cell. *E. Bot.* t. 892; *Ed. Cat.* p. 10. — β. *Ed. Cat.* p. 10.

Gravelly sterile soils, inland and upon the coast. *Fl.* June, July. ☉. —*Leaves* mostly spreading, very variable in size and pubescence, pinnatifid; segments often toothed or again divided. *Scape* hairy. *Spike* mostly cylindrical. In small plants growing on Staffa, I have seen the spike ovate, composed of not more than 7 or 8 flowers; whilst the leaves and scapes were quite hispid.

2. LITTORÉLLA *Linn.* Shore-weed.

Barren fl. Cal. of 4 leaves. *Cor.* 4-fid. *Stam.* very long. — *Fertile fl. Cal.* 0 (unless three bracteas can be so called). *Cor.* urceolate, contracted at the mouth. *Style* very long. *Caps.* 1-seeded. — Named from *littus*, the *shore;* from its place of growth.

1. L. *lacústris* L. (*Plantain Shore-weed*); *E. Bot.* t. 468; *Ed. Cat.* p. 8. — β. *Ed. Cat.* p. 8.

In watery, sandy, and stony places: particularly abundant on the margins of the Highland lakes, where it forms a green turf. *Fl.* June. ♃. — *Leaves* all radical, linear, fleshy, semicylindrical, about 2 inches long. *Scapes* several. *Sterile fl.* solitary, sometimes 2 (*Mr. W. Wilson*), upon a *scape* 2—3 inches long. *Cor.* white, with the tube inflated. *Fertile flowers* sessile in the axils of the leaves, surrounding the sterile scape. *Germen* oblong, green. *Style* very long, filiform. *Stigma* a mere point.

Sub-Class IV. Monochlamydeæ.[1] (Ord. LXVII. — LXXX.)

Flowers incomplete. Perianth single; in other words, the Calyx and Corolla forming but one floral covering, or altogether wanting.

Div. I. *Flowers perfect; i. e. each usually with stamens and pistil.* (Ord. LXVII.—LXXIII.)

Ord. LXVII. AMARANTHACEÆ.

Sometimes monœcious. *Perianth* 3—5-leaved. *Stamens* 3—5, hypogynous, sometimes monadelphous, opposite to the segments of the perianth. *Ovary* 1, 1—2-celled, with 1 or few *ovules*. *Style* 1 or 0. *Stigma* simple or compound. *Capsule* 1-celled. *Seeds* from a central receptacle, often stalked. *Embryo* curved round a farinaceous *albumen*. — Herbs, *rarely* shrubs. Leaves *without stipules*. *Closely allied in essential character to, but differing in habit from, the following Order.* — Many of the species are used as potherbs.

1. Amaránthus *Linn.* Amaranth.

Barren fl. Perianth single, deeply 3—5-partite. *Stam.* 3—5.—*Fertile fl. Perianth* single, deeply 3—5-partite. *Styles* 3 or 2. *Capsule* of 1 cell, with 1 *seed*, bursting all round transversely. — Named from *α, not, μαραινω, to fade;* or, flowers which do not fade, commonly called "Everlasting Flowers."

1. A. **Blítum* L. (*wild Amaranth*); flowers 3-cleft and triandrous in small lateral clusters, the segments very obtuse, leaves ovate obtuse, stem spreading. *E. Bot.* t. 2212; *Ed. Cat.* p. 1.

Low waste grounds and near dunghills: about Cambridge, London, and in Huntingdonshire. *Fl.* Aug. ☉.

Ord. LXVIII. CHENOPODEÆ.

Sometimes monœcious or polygamous. *Perianth* free, generally deeply 5-lobed. *Stamens* mostly 5 (in *Salsola* 2 or 1).

[1] From *μονος, one,* or *single;* and *χλαμυς,* a *tunic,* or *garment.*

Stamens from the base of the perianth, and opposite to the segments. *Ovary* 1, 1-celled. *Style* divided, rarely simple. *Fruit* indehiscent (sometimes a *Berry*). *Seed* 1 at the base of the cell. *Embryo* spiral or curved round a farinaceous *albumen*. — Herbs, *rarely* shrubs; *without stipules*. Flowers *small, inelegant*. Here likewise are many potherbs, some are tonic and antispasmodic. The seeds of *Chenopodium* are employed in the preparation of Shagreen; *C. Quinao* is a most extensively used article of food in Peru; *C. ambrosioides* and *C. Botrys* contain an essential oil; *C. anthelminticum* yields *Wormseed oil*, a powerful vermifuge, as its name implies; and *C. olidum* exhales pure *Ammonia*. *Atriplex hortensis* is the *Garden Orache; Spinachia*, the Spinach; *Beta*, the Beet. All yield carbonate of soda and hence *Barilla*. From *Beet-roots* is extracted the very fine sugar now extensively manufactured in France.

1. CHENOPÓDIUM *Linn.* Goose-foot.

Perianth single, inferior, 5-cleft, persistent and unaltered, closing upon, but not wholly enveloping, the *fruit*. *Seed* solitary, lenticular. — Named from χην, χηνος, *a goose*, and πους, a *foot*; from the shape of the leaves in some species. They are more or less employed as potherbs.

* *Leaves semicylindrical; flowers with two bracteas each.* (Suæda *Forsk. et Moq.-Tand.*)

1. C. *fruticósum* Schrad. (*shrubby Sea-side Goose-foot*); leaves semicylindrical, styles often 3 combined at the base, stem shrubby. Salsola fruticosa *L.*: *E. Bot.* t. 635. Schoberia fruticosa *Mey.*: *Ed. Cat.* p. 12.

On the Norfolk coasts, especially at Cley; and those of Suffolk, Dorsetshire, Devonshire, and Cornwall: but rare. *Fl.* July, Aug. ♃. — 3 ft. and more high, with many erect, leafy *branches*. *Flowers* in small axillary clusters, sometimes solitary. *Calyx* unchanged in fruit, as in the following species.

2. C. *marítimum* L. (*annual Sea-side Goose-foot*); leaves semicylindrical a little tapering upwards, styles 2, stem herbaceous. *E. Bot.* t. 633. Schoberia maritima *Mey.*: *Ed. Cat.* p. 12.

Sea-shore, frequent. *Fl.* July, Aug. ⊙. — This has quite the habit of the last species; but is much smaller and an annual. *Flowers* solitary, or two in the axils of the *leaves*, and each subtended by two small, ovate, acute, narrow *bracteas*. *Seeds* horizontal: *Wils.*

** *Leaves plane, undivided; bracteas under each flower none.*

3. C. *ólidum* Curt. (*stinking Goose-foot*); leaves ovato-rhomboid entire, flowers in dense clustered spikes, stem diffuse. *E. Bot.* t. 1034; *Ed. Cat.* p. 4. C. Vulvaria *Linn.*

Waste places and under walls, especially near the sea. *Fl.* Aug. ⊙. — *Leaves* small, petiolate, greasy to the touch and covered with a pulverulent substance, which, when bruised, yields a detestable odour, resembling that of putrid fish. *Seeds* horizontal: *Wils.*

4. C. *polyspérmum* L. (*many-seeded Goose-foot*); leaves ovate entire, spikes elongated subcymose. *Hook. Scot.* i. p. 83; *Ed. Cat.* p. 4. — *α.* stems all prostrate, leaves obtuse, spikes cymose leafless. C. polyspermum, *E. Bot.* t. 1480; *E. Fl.* v. ii. p. 15. — *β.* stem erect, leaves acute, spikes leafy scarcely cymose. *Ed. Cat.* p. 4. C. polyspermum, *Curt. Lond.* t. 17. C. acutifolium, *E. Bot.* t. 1480; *E. Fl.* v. ii. p. 15.

α. Cornwall. — *β.* not unfrequent in waste places and among rubbish. *Fl.* Aug. Sept. ☉. — The spikes of *flowers* are more or less cymose, leafy and leafless upon the same individual: and I can by no means assent to the opinion that the *C. acutifolium* is permanently distinct from *C. polyspermum*, of which Wallroth, an excellent observer, says "variat foliis ovatis, obtusis, emarginatis, rubro-marginatis, acutis; cymis aphyllis et foliosis expansis." It is remarkable for its very numerous, dark brown, shining *seeds* (which are horizontal: *Wils.*), in part only enveloped by the perianth.

*** *Leaves plane, toothed, angled or lobed.*

5. C. *Bonus Henrícus* L. (*Mercury Goose-foot* or *good King Henry*); leaves triangular arrow-shaped (mostly) entire, spikes compound terminal and axillary erect leafless. *E. Bot.* t. 1033; *Ed. Cat.* p. 4. Blitum *Mey.*

Waste places and way-sides; frequent. *Fl.* Aug. ♃. — *Stems* 1 foot high, striated. *Leaves* large, dark green, used, when boiled, instead of *spinach*. *Calyx* quite campanulate, 5-cleft half-way down. *Seed* vertical, coated with a true pellicle, besides the capsular integument, on removing which the seed is smooth and shining: *Wils.*

6. C. *intermédium* Mert. et Koch (*upright Goose-foot*); leaves triangular toothed, spikes long erect approaching the stem sub-simple nearly leafless, flowers scattered on the spikes. C. urbicum, *E. Bot.* t. 717 (not *Linn. according to Borrer*). C. urbicum *β. Ed. Cat.* p. 4.

Waste places, under walls, and about towns and villages. *Fl.* Aug. ☉. — *Stem* erect, angular. *Leaves* large, truncate or subcuneate at the base, of a light or subglaucous green, their margins deeply and irregularly toothed. *Flowers* on the spikes, in rather small, but remote, clusters; *spikes* very long and erect. *Seeds* or *fruits* (horizontal, rough, coated very tightly with a papillose, fragile pellicle: *Wils.*), large in comparison with those of the following species, "almost as big as rape-seed:" *Curtis.*

7. C. *rúbrum* L. (*red Goose-foot*); leaves triangular somewhat rhomboid toothed and serrated, spikes erect compound leafy, flowers crowded on the spikes. *E. Bot.* t. 1711; *Ed. Cat.* p. 4. Blitum polymorphum *Mey.* — *β. botryodes;* leaves triangular shortly attenuated at the base scarcely toothed, spikes erect compound leafy. C. botryodes *Sm.: E. Bot.* t. 2247; *Ed. Cat.* p. 4. Blitum polymorphum *β.* crassifolium *Moq.-Tand.*

Dunghills and under walls.—*β.* waste ground near the sea, Yarmouth, Lowestoft, South Shoebury. *Fl.* Aug. Sept. ☉. — Of a darker green

than the last. *Stems* frequently reddish. *Leaves* always more or less attenuated at the base, by no means truncate. *Spikes* very compound, thick. The salt (or alkali) contained in the juice of this plant crystallizes upon the surface of the stem. *Cal.* in 3 deep segments. The *seeds* are vertical, small, smooth, enveloped in a very loose bladdery skin: *Wils.*

8. C. *murále* L. (*Nettle-leaved Goose-foot*); leaves ovate approaching to rhomboid acute toothed shining, spikes much branched cymose leafless. *E. Bot.* t. 1722; *Ed. Cat.* p. 4.

Waste places near towns and villages. *Fl.* Aug. ⊙. — Branches of the *spikes* spreading. *Flowers* rather distant. *Smell* unpleasant.

9. C. *hýbridum* L. (*Maple-leaved Goose-foot*); leaves cordate angulato-dentate acuminate, spikes very much branched subcymose divaricated leafless. *E. Bot.* t. 1919; *Ed. Cat.* p. 4.

Waste places and in cultivated fields, not common: about London Colchester, Dedham, Ely, and Edinburgh. *Fl.* Aug. ⊙. — *Stems* slender. *Leaves* large, with very prominent teeth or angles. *Spikes* similar to the last, but the branches are more remote and spreading. *Seed* horizontal: *Wils.*

10. C. *álbum* L. (*white Goose-foot*); leaves ovate inclining to rhomboid erose entire at the base, upper ones oblong perfectly entire, spikes branched somewhat leafy, fruit smooth. *E. Bot.* t. 1723; *Ed. Cat.* p. 4. — β. leaves green more entire, spikes elongated more branched. *Sm.: Ed. Cat.* p. 4. C. viride *L.*

Waste places, dunghills, &c., common. *Fl.* July, Aug. ⊙. — *Leaves* covered with a whitish and mealy substance, varying in their width, and in the erosion, or blunt toothing, of the upper half of their margins. When these are nearly entire it is the *C. viride* of *Linn.*

11. C. *ficifólium* Sm. (*Fig-leaved Goose-foot*); leaves ovato-oblong toothed and sinuated at the margin somewhat hastate, upper ones oblong quite entire, fruit dotted. *E. Bot.* t. 1724; *Ed. Cat.* p. 4.

Dunghills and waste ground, about London and Yarmouth. *Fl.* Aug. Sept. ⊙. — *Seed* horizontal. Hudson and Moquin-Tandon refer this to the *C. serotinum* of *Linn.*, which Sir James Smith says is a Spanish plant, not yet found in Britain.

12. C. *glaúcum* L. (*Oak-leaved Goose-foot*); leaves all oblong toothed and sinuated at the margin glaucous and mealy beneath, spikes compound leafless, seed very minutely dotted. *E. Bot.* t. 1434; *Ed. Cat.* p. 4.

Waste ground, especially on a sandy soil about London. *Fl.* Aug. ⊙. *Seeds* vertical. *Cal.* in 3 deep segments. *Stam.* 1—3: *Wils.*

2. A'TRIPLEX *Linn.* Orache.

Sterile fl. and *united fl. Perianth* single, 5-partite, inferior. *Stam.* 5. *Style* bipartite. — *Pistilliferous fl. Perianth* single, of 2 valves. *Stam.* 0. *Fruit* 1-seeded, covered by the per-

sistent enlarged *perianth.* — Named from α, *not*, and τραφειν, to *nourish.*

1. A. *portulacoídes* L. (*shrubby Orache* or *Sea Purslane*); stem shrubby, leaves obovato-lanceolate entire silvery white. *E. Bot.* t. 261. Halimus *Wallr.: Ed. Cat.* p. 6. Obione *Moq.-Tand.*

Muddy sea-shores, England and Ireland. Mull of Galloway: *Dr. Graham;* and near Helensburgh, Scotland. *Fl.* July, Aug. ♃. — 1—2 ft. and more high, with small, yellowish *flowers* in axillary *spikes.*

2. A. *pedunculáta* L. (*stalked Sea Orache*); stem herbaceous zigzag with spreading branches, leaves obovato-lanceolate, seed-bearing flowers cuneate 2-horned on long stalks. *E. Bot.* t. 232. Halimus *Wallr.: Ed. Cat.* p. 6.

On the east and south coast of England, in muddy salt-marshes. Cunnamara, Ireland. *Fl.* Aug. Sept. ☉. — Whole *plant* covered with scaly mealiness; well distinguished from all the other species by its long *peduncles* and the peculiar shape of the seed-bearing *perianth*, especially when the *fruit* is ripe.

3. A. *laciniáta* L. (*frosted Sea Orache*); stem herbaceous spreading, leaves ovato-deltoid dentato-sinuate very mealy beneath. *E. Bot.* t. 165; *Ed. Cat.* p. 2. Obione *Moq.-Tand.*

Sandy sea-shores, not uncommon. *Fl.* July, Aug. ☉. — Whole *plant* hoary. *Flowers: sterile ones* in terminal *spikes;* the others axillary, nearly solitary.

4. A. *rósea* L. (*spreading-fruited Orache*); "stem herbaceous diffuse with spreading branches, leaves hoary ovato-triangular somewhat 3-lobed unequally serrated dentate, perianth of the fruit rhomboid acute toothed with a double series of tubercles on the back, clusters of flowers axillary and terminal, seeds tuberculato-rugose." *Bab. Fl. Sarn.* p. 84; *Ed. Cat.* p. 2.

St. Peter's Port, Guernsey. Herm: *Babington. Fl.* Sept. ☉.

5. A. *pátula* L. (*spreading Halberd-leaved Orache*); stem herbaceous spreading, leaves triangular-hastate glabrous above irregularly toothed, the upper ones entire, perianth of the fruit more or less tuberculated at the sides. *E. Bot.* t. 936; *Ed. Cat.* p. 2.

Cultivated and waste ground, and in salt-marshes. *Fl.* July. ☉. — *Stems* straggling; *branches* long, striated. *Flowers* in small *clusters*, on long, interrupted, axillary *spikes.*

6. A. *deltoidéa* Bab. (*triangular-leaved Orache*); "stem herbaceous erect, branches ascending, leaves hastate-triangular unequally toothed opposite all of them uniform, perianths of the fruit ovato-triangular toothed muricated on the back longer than the fruit collected into a branched many-flowered panicle, seed shining smoothish." *Bab. Fl. Sarn.* p. 82; *Ed. Cat.* p. 2.

Braye du Valle, and below Fort George, Guernsey. Sark: *Babington. Fl.* Sept. ☉. — "*Flowers* in small round dense tufts placed near

together, and thereby differing totally from *A. patula*. *Seeds* not half so large as in *A. patula*."

7. A. *angustifólia* Sm. (*spreading narrow-leaved Orache*); "stem herbaceous spreading, leaves lanceolate entire the lower ones partly 3-lobed, calyx of the fruit halberd-shaped slightly warty at the sides." *Sm.: E. Bot.* t. 1774; *Ed. Cat.* p. 2.

Cultivated and waste ground. *Fl.* July. ⊙. — This seems to be but a narrow-leaved *var.* of *A. spatula*.

8. A. *erécta* Huds. (*upright Spear-leaved Orache*); "stem herbaceous erect, leaves ovato-lanceolate lower ones sinuated, calyx of the fruit all over armed with sharp tubercles." *Sm.: E. Bot.* t. 2223; *Ed. Cat.* p. 2.

Waste ground, very rare. Near Battersea fields: *Sm. Fl.* Aug. ⊙. — Messrs. *Mill* and *Cole*, who find this plant in the same station, observe that it is covered with crystalline glands, rather than with powder or scales, and that the *calyx* of the fruit is beset with sharp *herbaceous* points.

9. A. *littorális* L. (*Grass-leaved Sea Orache*); stem herbaceous erect, leaves all linear entire or toothed, perianth of the fruit sinuated and muricated at the back. *E. Bot.* t. 708; *Ed. Cat.* p. 2.

Muddy salt-marshes, chiefly on the east coast. *Fl.* July. ⊙. — The under sides of the *leaves* and the *flowers* are mealy. The latter grow in rather crowded, axillary and terminal *spikes*.

(Mr. Babington in his Flora Sarnica, and the Ed. Cat. have introduced five additional species, *A. marina* Linn. Mant., which Smith and most authors refer to littoralis; *A. microsperma* and *A. prostrata* Bouch., both referred by Moquin-Tandon, who has so assiduously studied the whole family of Chenopodeæ, to A. patula; *A. rosea* Linn., and *A. deltoidea* Bab., both above described.)

3. Béta *Linn.* Beet.

Perianth single, half-inferior, 5-cleft, persistent. *Seed* 1, reniform, imbedded in the fleshy base of the calyx. — Name derived from the Celtic *bett*, according to Théis, which means *red*.

1. B. *marítima* L. (*Sea-Beet*); stems procumbent at the base, flowers solitary or in pairs, calycine segments entire. *E. Bot.* t. 285; *Ed. Cat.* p. 2.

Sea-shores, especially in a muddy soil, England; and the south, principally, of Scotland. *Fl.* Aug. ♃. — *Root* large, thick and fleshy. *Stem* tall, branched, angular. *Root-leaves* subovate, succulent, entire, waved. *Spikes* of *flowers* numerous, leafy; *leaves* small, at the base of each flower or pair of flowers, which are greenish. — De Candolle says this is biennial, and distinguishes it from the cultivated *Beet*, *B. vulgaris*, in having 1—2 instead of 3—4 flowers, in the axil of the upper leaves. Smith observes that, according to Linnæus, it differs from *B. vulgaris*

in the keel of the calyx being entire. The present is esteemed a wholesome food when boiled. Mr. W. Wilson finds that there are always 3 styles, and that the germen is 3-seeded, that the flowers are often 3 together, and that when the seed is ripe the germen becomes purple and granulated.

4. Sálsola *Linn.* Saltwort.

Perianth single, inferior, 5-parted, persistent, enveloping the fruit with its base, and crowning it with its broad, scariose limb. *Seed* solitary, its *cotyledon* spiral. — Named from *sal, salt.* From many of this tribe abundance of alkaline salt is obtained, as is implied by the name of our only British species.

1. S. *Káli* L. (*prickly Saltwort*); stems herbaceous prostrate, leaves subulate spinous scabrous, segments of the perianth margined scariose. *E. Bot.* t. 634; *Ed. Cat.* p. 12.

Sandy sea-shores, frequent. *Fl.* July. ☉. — *Stem* angled, very much branched. *Flowers* solitary, pale-greenish, sessile, with 3 leaf-like *bracteas* at the base of each.

5. Salicórnia *Linn.* Glasswort.

Perianth single, turbinate, fleshy, obscurely lobed. *Style* short. *Stigmas* bi-trifid. *Fruit* an 1-seeded *Utricle*, included in the enlarged *Perianth.* — Named from *sal, salt,* and *cornu,* a *horn,* from the horn-like branches and saline nature of the plants.

1. S. *herbácea* L. (*jointed Glasswort*); stem herbaceous, articulations compressed somewhat thickened upwards and notched, spikes cylindrical slightly tapering at the extremity. — α. stem erect. S. herbacea, *E. Fl.* v. i. p. 2; *Ed. Cat.* p. 11. S. annua, *E. Bot.* t. 415. — β. stem procumbent. *Ed. Cat.* p. 11. S. procumbens, *E. Bot.* t. 2475.

Salt-marshes, plentiful. *Fl.* Aug. Sept. ☉. — *Plant* leafless, much branched and jointed; articulations a little thickened upwards, very succulent, shrinking much when dry, in which state the upper extremity of each articulation forms a two-lobed membranous socket or short sheath, which receives the base of the articulation above it. *Spikes* of *flowers* dense, lateral and terminal, jointed like the stem, and bearing, at the base of every short articulation, on two opposite sides, a cluster of 3 *flowers*, each composed of a single *perianth*, apparently quite closed at the top, and pierced, as it were, by the bi- or trifid *stigma* and the single or two *stamens:* when two, appearing in succession. Mr. Wilson observes that the central flower (in the *erect* var. at least) has *two* stamens, one placed below, the other above, the laterally-compressed germen; and that the side-flowers have only *one*, placed above the germen.

2. S. *radícans* Sm. (*creeping Glasswort*); stem woody procumbent and rooting, articulations compressed spreading and notched at the top, spikes oblong obtuse. *E. Bot.* t. 1691, and t. 2467. S. fruticosa, *Ed. Cat.* p. 11. — β. *Ed. Cat.* p. 11.

Muddy sea-shores, rare; on the Norfolk and Sussex coasts. In the Isle of Sheppey, Kent. Near Newry, Ireland. *Fl.* Aug., Sept. ♃.— This plant requires a close investigation on recent specimens. Smith originally referred our state of it to the *S. fruticosa* Linn.; and Moquin-Tandon makes it the *var.* β. of that species, and even constitutes of it his genus *Arthrocnemum*, which, he says, differs from *Salicornia* in having the flowers not sunk in excavations of the rachis, and in the perianth not being winged. In *Salicornia*, he further observes, that the embryo surrounds the whole albumen, forming a complete ring; whereas in *Arthrocnemum* it is only half a ring. — The various species of this genus, as well as others belonging to the same natural family, and growing abundantly on the coasts in the south of Europe and north of Africa, yield a vast quantity of soda, so much employed in making both soap and glass; whence their English name, *Glasswort.*

Ord. LXIX. POLYGONEÆ *Juss.*

Sometimes monœcious or diœcious. *Perianth* free, divided, the segments often in a double row. *Stamens* definite, but varying in number, from the base of the perianth. *Ovary* with 2 or more *styles* or sessile *stigmas*. *Achenium* frequently 3-angular, with one erect *seed*. *Embryo* in a farinaceous *albumen*, often lateral. — Herbaceous, *rarely* shrubby plants, *with sheathing stipules.* — The stems and leaves are acid and astringent; the roots, in general, nauseous and purgative; while the seeds are very farinaceous and esculent. The *True Rhubarb* belongs to this Order, and is the *Rheum Emodi* of Wallich.

1. Polýgonum *Linn.* Persicaria, Bistort, Knot-grass, and Buck-wheat.

Perianth single, inferior, in 5 deep, coloured, persistent segments. *Stam.* 5—8. *Styles* 2, 3. *Fruit* a 1-seeded, compressed or trigonous *nut.* — Named from πολυς, *many*, and γονυ, a *knee* or *joint*; from the numerous joints of the stem.

* *Styles* 3, *and the fruit triquetrous.*

1. P. *Bistórta* L. (*Bistort* or *Snakeweed*); stem simple bearing one spiked raceme, leaves ovate waved, the radical ones tapering into a footstalk. *E. Bot.* t. 509; *Ed. Cat.* p. 10.

Moist meadows in various parts of England, Scotland, and Ireland. *Fl.* June. ♃. — 1—1½ foot high. Upper *leaves* with long sheaths. *Spike* cylindrical, dense. *Flowers* flesh-coloured, on short foot-stalks, with small *bracteas* at their base. *Stam.* 8. *Styles* 3. *Root* large, tortuose, very astringent.

2. P. *vivíparum* L. (*viviparous alpine Bistort*); stem simple bearing one spike, leaves linear-lanceolate, the lower ones elliptical petiolate, their margins revolute. *E. Bot.* t. 669; *Ed. Cat.* p. 10.

Mountain pastures in the north of England, and abundant on the Highland mountains of Scotland. *Fl.* June. ♃. — 4—8 inches high, slender. *Spike* linear; lower part of it generally bearing little vivipa-

rous *bulbs* of a fine red colour. *Stam.* 8. *Styles* 3. *Perianth* pale flesh-coloured, almost white. — This species increases much by the bulbs, and little, if at all, by seed, its triquetrous germen proving abortive.

3. P. *aviculáre* L. (*common Knot-grass*); flowers axillary, leaves elliptico-lanceolate, stipules much shorter than the internodes with about 6 distant nerves, stem mostly procumbent herbaceous, fruit shorter than the perianth striated with raised points. *E. Bot.* t. 1252; *Ed. Cat.* p. 10.

Waste places and way-sides, abundant. *Fl.* May—Sept. ⊙.

4. P. *Robérti* Lois. (*Robert's Knot-grass*); flowers axillary, leaves distant elliptico-lanceolate, stipules much shorter than the internodes with very few indistinct nerves at length torn, stem procumbent herbaceous, fruit shorter than the perianth quite smooth on the surface. P. Raii *Bab. in Linn. Trans.* v. xvii. p. 458, *and in E. Bot. Suppl.* t. 2805; *Ed. Cat.* p. 10. P. acetosum *Hook. in Sm. Comp. to E. Fl.* ed. 2. p. 85 (not *Bieb.*) P. maritimum *Raii Syn.* p. 147. P. aviculare β. *Br. Fl.* ed. 3. p. 185. ε. *E. Fl.* v. ii. p. 238?

Sandy sea-shores in the west of England, Wales, and Scotland, and about Dublin. *Fl.* Aug., Sept. ⊙. — A large straggling species, appearing, as Mr. Babington well observes, exactly intermediate between *P. aviculare* and *P. maritimum.*

5. P. *marítimum* L. (*Sea-side Knot-grass*); flowers axillary, leaves crowded elliptico-lanceolate fleshy glaucous, stipules about as long as the internodes with about 12 nerves at length torn, stem procumbent woody below, fruit longer than the perianth quite smooth on the surface. *Bab. in Linn. Trans.* v. xvii. p. 457, *and in E. Bot. Suppl.* t. 2804; *Ed. Cat.* p. 10.

Christ-Church Head, on the sandy shore towards Muddiford, where it was recently discovered by *Mr. Borrer.* Herm Sands and Jersey; *Mr. Trevelyan:* and Grand Havre, Guernsey; *Babington* and *Christy.* Killiney Bay, near Dublin: sent to me in 1835; but the name of the discoverer I have accidentally lost, probably *Mr. Mackay* or *Mr. Moore. Fl.* Aug., Sept. ♃. — This, which is considered by Mr. Borrer as the true *P. maritimum,* has nevertheless stipules shorter than the internodes, and with fewer nerves than the continental specimens.

6. P.* *Fagopýrum* L. (*Buck-Wheat*); leaves cordato-sagittate, stem nearly upright without prickles, angles of the fruit even. *E. Bot.* t. 1044. Fagopyrum esculentum, *Ed. Cat.* p. 5.

Dunghills and about cultivated land. *Fl.* July, Aug. ⊙. — *Stem* nearly erect, waved, 1 foot high, branched. *Flowers* in spreading *panicles,* terminal and lateral, pale reddish. An excellent food for poultry.

7. P. *Convólvulus* L. (*climbing Buck-Wheat*); leaves cordato-sagittate, stem twining angular, segments of the perianth bluntly keeled, fruit opaque striated with minute points. *E. Bot.* t. 941; *Ed. Cat.* p. 10.

Corn-fields, frequent. *Fl.* July, Aug. ⊙. — Very long, climbing. *Spikes* lateral and leafy, of 4 whorled greenish *flowers.*

8. P. *dumetórum* L. (*Copse Buck-wheat*); leaves cordato-sagittate, stem twining striated, segments of the perianth with a membranous wing, fruit quite smooth and shining on the surface. *Bab. in E. Bot. Suppl.* t. 2811; *Ed. Cat.* p. 10.

Wood at Wimbledon: *Mr. J. A. Hankey.* Hedge by Wood's Nursery, near Marcsfield: *Mr. Borrer.* Framfield: *Mr. Lingwood.* Torvick and Trotton: *Mr. E. Jenner.* Sussex. Near Keynsham, Somersetshire: *Mr. J. A. Hankey.* Near Ryegate: *Mr. Luxford. Fl.* Sept. ⊙.

** *Styles mostly* 2, *and fruit compressed, or* 2-*edged.*

9. P. *amphíbium* L. (*amphibious Persicaria*); flowers pentandrous, styles forked, spike oblongo-ovate, leaves petiolate cordato-lanceolate rough at the margins. *E. Bot.* t. 436; *Ed. Cat.* p. 10. *Ed. Cat.* p. 10. — *α. aquaticum;* leaves floating broadly lanceolate glabrous, spikes oblong. — *β. terrestre;* nearly erect, leaves narrow-lanceolate rough with short rigid appressed hairs on both sides, spikes ovate. *Ed. Cat.* p. 10.

Margins of ponds, lakes and ditches, frequent. *Fl.* July, Aug. ♃. — *Stem* 2—3 feet long, scarcely branched when growing in the water. *Leaves* arising from long tubular *sheaths* or *stipules;* glabrous in *α.* but hispid in *β.* *Spikes* mostly solitary, terminal, of a bright rose-colour. This is the only perennial species of the *Persicaria* group.

10. P. *Persicária* L. (*spotted Persicaria*); flowers hexandrous, styles forked, leaves lanceolate (often spotted), spikes oblong erect their peduncles smooth, stipules fringed. *E. Bot.* t. 756; *Ed. Cat.* p. 10.

Moist ground and waste places, frequent. *Fl.* Aug. ⊙. — *Stems* erect, branched, 1—2 feet high. *Spikes* terminal and lateral, dense, greenish, the tips of the *flowers* rose-coloured. *Leaves* nearly sessile, glabrous: but there are said to be varieties with hoary leaves.

11. P. *láxum* Reich. (*slender-headed Persicaria*); flowers hexandrous semidigynous, stem ascending, leaves lanceolate slightly waved, spikes elongated slender, their peduncles (as well as the petioles) glandular and scabrous. *Reich. Iconogr.* t. 492; *Borr. in Br. Fl.* ed. 4. p. 165 (note); *Bab. in E. Bot. Suppl.* t. 2822; *Ed. Cat.* p. 10.

Woodford, Essex: *Mr. E. Forster.* Cambridge. Chalk Farm, London; and Jersey: *Mr. Babington.* Sussex: *Mr. Borrer. Fl.* July, Aug. ⊙. — Reichenbach himself seems disposed to consider this a hybrid; Mertens and Koch remark that they have seen forms of *P. lapathifolium* closely resembling it; and Mr. Babington, in *Fl. Sarn.*, says "he suspects it will be found to be a var. of *P. Persicaria.*"

12. P. *lapathifólium* L. (*pale-flowered Persicaria*); flowers hexandrous with 2 distinct styles, leaves ovato-lanceolate shortly petiolate, spikes oblong erect their peduncles rough, stipules

not fringed. *E. Bot.* t. 1382; *Ed. Cat.* p. 10. — β. *Ed. Cat.* p. 10.

Fields and dunghills, frequent. *Fl.* July, Aug. ⊙. — 1—1½ ft high. A very variable species; but the above characters, so ably pointed out by Mr. Curtis, as distinguishing it from *P. Persicaria*, are constant. Sometimes the *stem* is spotted, and sometimes the *leaf* is hoary. The *flowers* are either pale green, almost white, or of a reddish tint. *Spikes* dense, terminal, and lateral.

13. P. *míte* Schrank (*lax-flowered Persicaria*); flowers hexandrous without glands, styles forked, leaves lanceolate, stipules hairy with long ciliæ, spikes lax filiform drooping. *Ed. Cat.* p. 10. P. laxiflorum *Weihe.* P. Braunii *Bluff* and *Fingerh.* P. Hydropiper *var. Curt.*

About London: *Lagasca*, and *Mr. Borrer.* Near Cambridge: *Mr. Babington.* *Fl.* Aug. ⊙.—Allied to the following, differing from it chiefly in the absence of glands to the flowers, and from *P. minus*, in the greater size, broader leaves, and larger flowers and fruit. *Flowers* red.

14. P. *Hydrópiper* L. (*biting Persicaria*); flowers hexandrous glandular, styles forked, leaves lanceolate waved and spotless, stipules with short ciliæ, spikes lax filiform drooping, stem erect. *E. Bot.* t. 989; *Ed. Cat.* p. 10.

Frequent by the sides of lakes and ditches. *Fl.* Aug. Sept. ⊙.—1—3 feet high, erect. Remarkable for its slender, long, more or less drooping *spikes* of distant, reddish *flowers;* they are lateral and terminal.

15. P. *mínus* Huds. (*small creeping Persicaria*); flowers hexandrous without glands, style nearly undivided, leaves linear-lanceolate plane very shortly petiolate, stipules with long ciliæ, spikes slender erect, stem rooting at the base. *E. Bot.* t. 1043; *Ed. Cat.* p. 10.

On gravelly, watery commons; about London, Worcestershire, Cheshire and Lancashire. Moist fields round Forfar. Near Cork, Ireland. *Fl.* Sept. ⊙.—Allied to *P. Hydropiper;* but much smaller, procumbent below, with upright *spikes*, narrower *leaves*, and nearly undivided *stigmas*.

2. Rúmex *Linn.* Dock and Sorrel.

Cal. of 3 leaves combined at the base. *Cor.* of 3 petals. *Stigmas* multifid. *Nut* triquetrous, covered by the enlarged petals, which often bear tubercles. — Name of unknown origin.

* *Plants not acid. Flowers perfect.* (Lapathum—Dock.)

1. R. *Hydrolápathum* Huds. (*great Water Dock*); enlarged petals ovato-deltoid reticulated each with a tubercle entire, leaves lanceolate the lower ones cordate at the base, whorls mostly leafless. *Reich. Ic. Bot.* t. 370; *Ed. Cat.* p. 11. R. aquaticus *Sm. Fl. Br.* p. 394; *E. Bot.* t. 2104.

Ditches and river-sides, frequent. *Fl.* July, Aug. ♃.—The largest of our *Docks*, 3—5 feet high; some of the lower *leaves* 1½ ft. long. *Root* large, very astringent. Enlarged *petals* with prominent veins, and large oblong tubercles.

2. R. *crispus* L. (*curled Dock*); enlarged petals broadly cordate entire or crenulate reticulated, one only with a perfect large coloured tubercle, leaves lanceolate waved acute, upper whorls leafless. *E. Bot.* t. 1998; *Ed. Cat.* p. 11.

Way-sides and near houses, pastures, &c., frequent. *Fl.* June, July. ♃.—2 or 3 feet high. *Lower leaves* the broadest, all waved and crisped at the margins. *Whorls* of *flowers* very numerous and crowded. Here the enlarged *petals* are truly cordate. Most authors say that each petal bears a *tubercle*; but in my specimens, in those gathered by Mr. Wilson in Lancashire, and in some that I have from Switzerland, one alone bears a large oblong orange-coloured *tubercle*, the others have only the midrib a little swollen at the base.

3. R. *praténsis* Mert. et Koch (*Meadow Dock*); "enlarged petals unequal toothed at the base with an entire triangular point, one principally tuberculated, leaves oblong-lanceolate wavy, clusters nearly leafless, whorls distinct." *Borr. in E. Bot. Suppl.* t. 2757; *Ed. Cat.* p. 11. R. cristatus *Wallr. and Fries.* R. acutus *Spreng.* (according to Borr.).

Marshes, in several counties. *Fl.* June, July. ♃.—Most allied to *R. crispus*, but the clusters are less crowded, the enlarged valves are unequal in size and more distinctly toothed, and the leaves are broader and less curled.

4. R. *aquáticus* L. (*grainless Water Dock*); enlarged petals broadly cordate reticulated without tubercles, leaves lanceolate, the lower ones cordato-oblong crisped and waved, whorls crowded mostly leafless. *Reich. Ic. Bot.* t. 369; *Svensk Bot.* t. 209; *Hook. in E. Bot. Suppl.* t. 2698; *Ed. Cat.* p. 11.

Moist places near Ayr: *Mr. Goldie. Fl.* July. ♃.— This was sent to me as a new species of *Rumex* by Mr. Goldie. It comes, indeed, very near *R. crispus*, but the enlarged *petals* are quite destitute of grains or *tubercles*, and in this respect it agrees exactly with the true *aquaticus* of Linn.

5. R. **alpínus* L. (*alpine Dock*, or *Monk's Rhubarb*); enlarged petals cordate reticulated obscurely toothed at the margin, one bearing a small grain, leaves broadly cordate ample obtuse, whorls leafless crowded, flowers monœcious. *Hook. in E. Bot. Suppl.* t. 2694; *Ed. Cat.* p. 11. R. cordifolius *Horn.: Reich. Ic. Bot.* t. 487.

Road-side from Helensburgh to the head of the Gare Loch; and in 2 or 3 stations in that neighbourhood. Glen Luss. Near Dollar. Oneash, Derbyshire: *Mr. Christy. Fl.* July. ♃.— Its *root* was formerly employed in lieu of *Rhubarb*. *Leaves* a span broad, cordate, very obtuse, wrinkled and reticulated; *upper ones* ovato-lanceolate: *whorls* of *flowers* very dense.

6. R. *sanguíneus* L. (*bloody-veined*, and (β.) *green-veined*

Dock); enlarged valves (small) oblong entire, one at least bearing a tubercle, leaves lanceolate somewhat cordate, whorls distant on long generally leafless branches. — *α.* leaves with bright red veins. R. sanguineus *L.*: *E. Bot.* t. 1533; *Ed. Cat.* p. 11. —*β.* leaves with green veins. *Ed. Cat.* p. 11. R. viridis *Sibth.*: *Sm. Fl. Brit.* p. 390. R. Nemolapathum *Ehrh.*

Shady pastures, woods and road-sides. — *β.* far more frequent than *α.* *Fl.* July. ♃.

7. R. *acútus* L. (*sharp Dock*); "enlarged petals oblong obscurely toothed all tuberculated, leaves oblong-heart-shaped pointed, clusters leafy." *E. Bot.* t. 724. R. conglomeratus, *Ed. Cat.* p. 11.

Moist deep soils, and in watery places, not uncommon. *Fl.* July. ♃.—Much resembling *var. β.* of the last species, and appearing to me to differ chiefly in its leafy *whorls* and more coloured *flowers*. But Smith says it is a totally distinct plant, and that it always grows in watery places.

8. R. *púlcher* L. (*Fiddle Dock*); enlarged petals ovate deeply toothed, one of them principally bearing a tubercle, root-leaves panduriform, stem spreading. *E. Bot.* t. 1576; *Ed. Cat.* p. 11.

Pastures, way-sides, &c. *Fl.* Aug. ♃. — *Stems* very straggling; *whorls* distant, on slender leafy branches.

9. R. *obtusifólius* L. (*broad-leaved Dock*); enlarged petals ovate toothed at the base, one principally bearing a tubercle, root-leaves ovato-cordate, stem roughish. *E. Bot.* t. 1999; *Ed. Cat.* p. 11.

Way-sides and waste places, too frequent. *Fl.* July. ♃.—2—3 feet high. *Whorls* rather close, somewhat leafy. Distinguishable by its broad and obtuse radical *leaves*, which are generally crisped at the margin. The entire terminal part of the enlarged petals or valves is, as Mr. Borrer observes, mostly oblong or almost ligulate. *Stem* scabrous between the elevated lines or ridges.

10. R. *marítimus* L. (*golden Dock*); enlarged petals deltoid fringed with setaceous teeth and bearing grains, whorls much crowded, leaves linear-lanceolate. *E. Bot.* t. 723; *Ed. Cat.* p. 11. R. aureus *With.*

Marshes, principally near the sea. *Fl.* July, Aug. ♃. — Well distinguished from every preceding species by its narrow *leaves*; excessively crowded *flowers*; bright, almost orange-coloured, enlarged *petals*, and their setaceous, or, I might almost say, spinous *teeth*.

11. R. *palústris* Sm. (*yellow Marsh Dock*); enlarged petals lanceolate with short setaceous teeth near the base and bearing tubercles, whorls remote, leaves linear-lanceolate. *E. Bot.* t. 1932; *Ed. Cat.* p. 11.

Marshy places, remote from the sea. *Fl.* July. ♃.—Nearly allied to the last, and I had an idea that it was not truly distinct: but Sir J. E. Smith considers it to be permanently different in the form of the *petals*,

when in *seed*, and in the number, shape, length, and situation of the *teeth* which border them.

** *Flowers dicœcious. Plants acid.* (Acetosa, *or* Sorrels.)

12. R. *Acetósa* L. (*common Sorrel*); enlarged petals orbicular-cordate reticulated scarcely tuberculated, leaves oblongo-sagittate. *E. Bot.* t. 127; *Ed. Cat.* p. 11.

Meadows and pastures, frequent. *Fl.* June, July. ♃.—1—2 feet high. *Petals* becoming large, purplish, orbicular-cordate, obtuse, membranous, reticulated with veins; *tubercles* very small, almost obsolete. I do not find the enlarged petals to be ovate, as Sir J. E. Smith describes them; nor does Mr. Wilson; but orbicular and cordate.

13. R. *Acetosélla* L. (*Sheep's Sorrel*); enlarged petals ovate not tuberculated, lower leaves lanceolato-hastate, lobes entire. *E. Bot.* t. 1674; *Ed. Cat.* p. 11.

Dry pastures, frequent. *Fl.* May—July. ♃.—Variable in its height, from 2—10 inches, and in the form of its *leaves;* for, frequently, *only* the *radical* ones are of the shape above described, at other times many of the *cauline* ones are so too; the rest are lanceolate, more or less petiolate, entire. Every part is much smaller than in the last species. In very dry situations and at the end of summer, the whole plant becomes of a rich red colour.

(R. *scutátus* L. the French or garden Sorrel, is introduced into the *Ed. Cat.*, but I know not on what authority.)

3. Oxýria *Hill.* Mountain-Sorrel.

Cal. of 2 leaves. *Cor.* of 2 petals, a little larger than the *cal.* *Nut* triquetrous, with a broad membranous margin. *Embryo* erect, inverted.—Named from *ὀξυς, sharp* or *acid;* from the acid flavour of this, as of many other plants belonging to the same natural family.

1. O. *renifórmis* Hook. (*Kidney-shaped Mountain-Sorrel*); *Hook. Scot.* i. p. 111; *Ed. Cat.* p. 9. Rumex digynus *L.: E. Bot.* t. 910.

North of England, Wales and Scotland, abundant in alpine situations, especially amongst moist rocks and within reach of the spray of cascades. *Fl.* July, Aug. ♃.—*Stems* 8—10 inches high, with rarely more than one leaf, often naked. *Radical leaves* numerous, all reniform, with a more or less evident obtuse sinus at the apex, on long footstalks, having membranaceous *stipules* at their base. *Racemes* and *peduncles* branched, with minute, ovate, membranous *bracteas* at the base of each ramification. *Pedicels* thickened upwards. *Flowers* erect, small. *Stam.* 6, shorter than the petals. *Pistil* nearly orbicular, compressed, notched, with 2, spreading feathery *styles*. *Fruit* a *nut*, enclosed in an *utricle*, with a remarkably broad winged border, tipped with the *styles* situated in rather a deep notch; and having at the base the pointed petals, not at all enlarged.

The leaves yield a most agreeably acid flavour, much resembling that of the *Wood-Sorrel* (*Oxalis Acetosella*).

Ord. LXX. ELEAGNEÆ.

Mostly dicœcious. — *Barren fl.* somewhat amentaceous. *Perianth* 4-parted. *Stamens* 3 or more. *Anthers* 2-celled.— *Fertile fl. Perianth* free, tubular, persistent, 2—4-toothed. *Ovary* 1, 1-celled. *Style* short. *Stigma* glandular. *Fruit* crustaceous, enclosed within the fleshy perianth. *Seed* solitary, erect. *Embryo* with a thin fleshy *albumen.* — Trees *or* shrubs, *with frequently leprous scales, no stipules.*

1. Hippóphae *Linn.* Sallow-thorn.

Barren fl. collected into a small sort of *catkin*, each *scale* bearing a flower. *Perianth* single, of 2 deep, roundish valves. *Anthers* linear, sessile.— *Fertile fl.* solitary. *Perianth* single, tubular, cloven at the summit. *Germen* superior. *Style* short. *Stigma* subulate, exserted. *Nut* one-seeded, surrounded by the large, coloured, berry-like *calyx.* — Name; ἱππος, a *horse*, and φαω, to *brighten;* but why so called cannot be determined.

1. H. *rhamnoides* L. (*common Sallow-thorn*, or *Sea Buckthorn*). *E. Bot.* t. 425; *Ed. Cat.* p. 6.

Sand-hills and cliffs upon the coast of the east and south-east of England. *Fl.* May. ♄. — A thorny *shrub*, 4—5 feet high, larger when cultivated in gardens, as it is on account of its silvery *leaves*, which are linear-lanceolate. *Flowers* very small, axillary, coming out with the young foliage. *Fruit* bright orange.

Ord. LXXI. THYMELEÆ *Juss.*

Perianth free, tubular, often coloured, 4—5-cleft. *Stamens* definite, when equalling in number the segments of the perianth opposite to them. *Ovary* 1. *Style* 1, and *stigma* 1, undivided. *Fruit* an *achenium*, or drupaceous. *Seed* 1, pendulous. *Albumen* none, or thin and fleshy. — Shrubby, *without* stipules. — An Order remarkable for the tenacious character of the inner bark, which is frequently made into paper, especially in India. *Lace bark* is the same substance of *Daphne Lagetto*, and is composed of layers of beautifully reticulated fibres.

1. Dáphne *Linn.* Mezereon and Spurge-Laurel.

Perianth single, inferior, often coloured, 4-fid. *Stam.* 8. *Berry* with one *seed.* — Named in allusion to the Nymph *Daphne*, who was changed into a *Laurel;* some of the plants of this genus having the habit of Laurels.

1. D. * *Mezéreum* L. (*common Mezereon*); flowers subternate lateral sessile appearing before the deciduous lanceolate leaves, tube of the perianth hairy. *E. Bot.* t. 1381; *Ed. Cat.* p. 4.

Rare, in woods in England; Hampshire, Sussex, Suffolk, Staffordshire, Worcestershire, Berkshire, and Oxfordshire. *Fl.* March. ♄. —

The well-known *Mezereon* of the gardens, whose early blossoms and delightful fragrance have attracted general notice. It forms a bushy *shrub*, bearing its numerous purple *flowers* before the *leaves*, and red *berries* nestled among the foliage. *Flowers* sometimes white.

2. D. *Lauréola* L. (*Spurge Laurel*); racemes axillary of about 5 flowers, leaves lanceolate glabrous evergreen. *E. Bot.* t. 119; *Ed. Cat.* p. 4.

Woods, thickets, and hedges throughout England, especially in a clay soil. Rare in Scotland; about Rosslyn and Bothwell. *Fl.* March. ♄. — *Stem* rather stout, erect, 1—3 feet high, but little branched, naked below, leafy above, and hence bearing some resemblance to a Palm. *Flowers* drooping, each accompanied by an ovate concave *bractea*. *Perianth* funnel-shaped, pale yellowish-green; *limb* 4-cleft. *Stam.* included, standing in two rows of 4 each; *filaments* very short. *Berry* ovate, bluish-black.

Ord. LXXII. SANTALACEÆ *Br.*

Perianth adnate with the ovary; its limb 4—5-cleft, with valvate æstivation. *Stamens* 4—5, opposite to the segments of the perianth. *Ovary* with from 1—4 *ovules*, fixed to the top of a central *placenta*. *Style* 1. *Stigma* often lobed. *Fruit* hard, dry and drupaceous, 1-seeded. *Albumen* fleshy. — Trees, shrubs, *or* herbaceous plants. Leaves *alternate or nearly so, without stipules*. Flowers *small*. — The true *Sandal-wood* of commerce is *Santalum album;* that of the Sandwich Islands, *Santalum Freycinetianum*. As in the preceding nearly allied Order of Thymeleæ, the bark is remarkably tough.

1. Thésium *Linn.* Bastard-Toadflax.

Perianth 4—5-cleft, persistent. *Stam.* with a small fascicle of hairs. *Nut* inferior, somewhat drupaceous. — Name of doubtful origin.

1. T. *linophýllum* L. (*Lint-leaved Bastard-Toadflax*); leaves linear-lanceolate, racemes panicled leafy, peduncles and pedicels bracteated, fruit nearly globose. *E. Bot.* t. 247; *Ed. Cat.* p. 14.

Elevated chalky pastures, Cambridgeshire, Norfolk, Suffolk, and Dorsetshire. Ranmar hills, near Dorking, Surrey. *Fl.* July. ♃. — *Roots* woody, sending forth several herbaceous, spreading, leafy *stems*, terminated by the somewhat paniculated leafy *racemes*. *Segments* of the *perianth* white. *Fruit* strongly ribbed.

Ord. LXXIII. ARISTOLOCHIEÆ *Juss.*

Perianth below adnate with the ovary, above free, tubular, with an usually irregularly lobed and often dilated limb. *Stamens* 6—10 or 12, epigynous. *Style* simple. *Stigma* rayed. *Fruit* 3—6-celled, many-seeded. *Albumen* fleshy. — Herbs *or* shrubs, *often climbing*. Leaves *alternate*. Wood *without concentric zones*. — Active emmenagogues.

1. Aristolóchia *Linn.* Birthwort.

Perianth superior, single, tubular, often swelling at the base, the mouth dilated on one side. *Anthers* 6, sessile on the short style. *Stigma* with 6 lobes. *Capsule* inferior, with 6 *cells.* — Name supposed to originate in its medicinal virtues.

1. A.* *Clematítis* L. (*common Birthwort*); stem erect, leaves heart-shaped, flowers upright, lip oblong shortly acuminate. *E. Bot.* t. 398; *Ed. Cat.* p. 2.

Copses and pastures, and especially among old ruins in the E. and S. of England. *Fl.* July, Aug. ♃. — *Flowers* pale yellow.

2. A'sarum *Linn.* Asarabacca.

Perianth campanulate, 3-cleft, superior. *Stam.* 12, from the top of the germen. *Stigma* rayed, 6-lobed. *Caps.* 6-celled.— Named from α, *not*, and σειρα, a *band*; because it was rejected from the garlands of flowers employed by the ancients.

1. A.* *Europæum* L. (*Asarabacca*); leaves binate reniform obtuse. *E. Bot.* t. 1083; *Ed. Cat.* p. 2.

Woods in the North; Lancashire and Westmoreland. Near Halifax. Near Linlithgow. *Fl.* May. ♃. — *Stem* very short. *Leaves* 2, petioled, shining; from the axil of these 2 leaves springs a solitary, rather large, drooping *flower* upon a short footstalk, of a greenish-brown colour and coriaceous substance. *Segments* of the *perianth* incurved. *Filaments* produced beyond the cells of the *anthers*, as in the genus *Paris*. *Roots* aromatic, and said to be purgative and emetic.

Div. II. *Flowers generally separated; monœcious or dicœcious.* (Ord. LXXIV.—LXXX.)

Ord. LXXIV. EMPETREÆ *Nutt.*

Dicœcious. *Perianth* of several hypogynous scales often arranged in 2 rows: the *Stamens* equal in number to their inner row. *Ovary* free, on a fleshy disk. *Style* 1. *Stigma* with as many divisions as there are cells. *Fruit* fleshy, with 3, 6—9 bony cells. *Seeds* solitary, ascending, with *albumen.* — *Small* shrubs, *with heath-like leaves, without stipules, and with small flowers:* — of dubious affinity.

1. Empétrum *Linn.* Crow-berry.

Barren fl. Perianth, many imbricating *scales*, of which the 3 inner are often regular, spreading, and petaloid. *Stam.* 3, with long filaments. *Rudiment* of a *pistil* with a many-cleft *stigma.* — *Fertile fl. Perianth* as in the barren. *Germen* globose. *Style* short. *Stigma* dilated, peltate, rayed. *Berry* superior, globose, with 6—9 *seeds.* — Named from εν, *in*, and πετρος, a *stone*; growing in stony places.

1. E. *nígrum* L. (*black Crow-berry* or *Crake-berry*); procumbent, leaves linear-oblong. *E. Bot.* t. 526; *Ed. Cat.* p. 5.

Mountainous heaths in the North, abundant. *Fl.* May. ♄. — A small, procumbent, much branching *shrub*, whose *leaves* have their margins so recurved as to meet behind. *Flowers* axillary towards the summit of the branches, small, purplish. *Berries* black, clustered, affording abundant food to the moor-game.

Ord. LXXV. EUPHORBIACEÆ *Juss.*

Anthers and *pistils* in distinct flowers, with a free, 3- or more cleft *perianth* (sometimes 0). — *Barren flowers. Stamens* 1 or many. *Anthers* 2-celled. — *Fertile flowers. Ovary* 1. *Styles* 2—3. *Stigmas* 2—3, 2-lobed or compound. *Capsule* elastically opening into 2—3 1- or 2-seeded cells. *Seeds* suspended. *Embryo* in the axis of a fleshy *albumen*. *Radicle* superior. *Cotyledons* flat. — Stems *herbaceous or woody*. Leaves *alternate, opposite or whorled, sometimes none.* — Acrid often milky vegetables, yielding food and poison, medicine, dye, and caoutchouc or India-rubber. The embryo is powerfully acrid and dangerous, the albumen innocuous and even eatable. *Castor oil* is extracted from the albumen of *Ricinus communis: Cascarilla* of Europe is *Croton Eleuteria: Oil of Tiglium* is from *Croton Tiglium*, a drastic purgative: *Turnsol*, a valuable dye and a highly acrid and drastic plant, is *C. tinctorium*. *Jatropha Manihot*, a most poisonous plant, affords the esculent *Cassava*. The *Caoutchouc* of Guiana is the inspissated juice of *Siphonia elastica*. *Euphorbia officinarum, Antiquorum* and *Canariensis* give the *Euphorbium* of the shops.

1. Mercuriális *Linn.* Mercury.

Dicœcious or monœcious. — *Barren fl. Perianth* single, tripartite. *Stam.* 9—12. *Anthers* of 2 globose lobes. — *Fertile fl. Perianth* single, tripartite. *Styles* 2. *Caps.* 2-celled; *cells* 1-seeded. — So named, because the god *Mercury* is said to have discovered the virtues, of what kind soever they may be, of this plant.

1. M. *perénnis* L. (*perennial* or *Dog's Mercury*); stem perfectly simple, leaves rough, root creeping perennial. *E. Bot.* t. 1872; *Ed. Cat.* p. 8.

Woods and shady places, abundant. *Fl.* April, May. ♃. — About 1 foot high. *Leaves* mostly on the upper part of the *stem*, ovate, serrated. *Flowers* in axillary, short, lax *spikes*. The *plant* in drying often becomes of a bluish or blackish green.

2. M. *ánnua* L. (*annual Mercury*); stem with opposite branches, leaves glabrous, root fibrous annual. *E. Bot.* t. 559; *Ed. Cat.* p. 8. — *β., Ed. Cat.* p. 8; *Bab. in Prim. Fl. Sarn.* p. 88. M. ambigua *L. fil.: Bab. in E. Bot. Suppl.* t. 2816.

Waste places about towns and villages, not common. *Fl.* Aug. ⊙. — 1 foot high. *Sterile flowers* in long, interrupted, axillary *spikes*. — β. Jersey: *Babington and Christy.* Isle of Wight: *Dr. Bromfield.*

2. Euphórbia *Linn.* Spurge.

Involucre of one piece, including several barren flowers and 1 fertile. — *Barren fl.* A single *stamen* without calyx or corolla. — *Fertile fl.* A single *pistil* without calyx (or rarely a very minute one) or corolla. *Germen* 3-lobed. *Styles* 3, cleft. *Caps.* 3-seeded. — Named from *Euphorbus*, physician to Juba, king of Mauritania, who brought the plant into use.

* *Glands of the involucre rounded on the outside.*

1. E. *Péplis* L. (*purple Spurge*); stem procumbent forked, leaves oblong heart-shaped nearly entire, glands of the involucre with small membranaceous scales beneath, capsule smooth, seeds smooth (white). *E. Bot.* t. 2002; *Ed. Cat.* p. 5.

Sandy coast, in Devon and Cornwall. Channel Islands: *Babington* and *Christy*. *Fl.* July—Sept. ⊙. — Remarkable for its procumbent *stems*, of a glaucous hue, much tinged with purple.

2. E. *helioscópia* L. (*Sun Spurge*); umbel of 5 principal branches, bracteas and leaves membranaceous obovato-cuneate serrated upwards, capsule glabrous, seeds reticulated and pitted. *E. Bot.* t. 883; *Ed. Cat.* p. 5.

Abundant in waste and cultivated ground. *Fl.* July, Aug. ⊙.—The acrid milky juice is employed to destroy warts.

3. E. *platyphýlla* L. (*broad-leaved warted Spurge*); umbel of about 5 principal branches and frequently with scattered peduncles beneath, bracteas cordate, leaves membranaceous broadly obovato-lanceolate acute finely serrulated hairy beneath, glands of the involucre oval, capsule warted, seeds smooth (brownish). *Jacq. Ic. Rar.* t. 376 (excellent); *Sm. Fl. Brit.* p. 517; *Ed. Cat.* p. 5. E. stricta *L.* and *E. Bot.* t. 333 (starved specimens); *E. Fl.* v. iv. p. 64.

Corn-fields; Albourne and near Henfield, Sussex (exactly corresponding with Jacquin's plant). Essex, Cambridgeshire, Kent, Tunbridge Wells, Suffolk, and probably other counties. *Fl.* July, Aug. ⊙. — A plant, according with Reichenbach's figure of *E.* "*stricta*," and differing by its narrower leaves from the common *E. platyphylla* (*E. stricta* Sm.), occurs between Tintern and the Wind-cliff. It is at least a strongly marked var.: *Borrer.*

4. E. *Hibérna* L. (*Irish Spurge*); umbel of about 5 principal branches, bracteas and leaves elliptical entire, glands of the involucre 4 kidney-shaped with intermediate rounded lobes, capsule warted glabrous, seeds smooth. *E. Bot.* t. 1337; *Ed. Cat.* p. 5.

In hedges and thickets, in the South of Ireland. Between Feversham and Sittingbourne, Kent: *Huds.* By the East Lynn river, near Bren-

don, N. Devon: *Mr. N. Ward;* and at Lynmouth: *Miss Griffiths. Fl.* June. ♃.—1½—2 feet high.[1]

5. E. *palústris* L. (*Marsh Spurge*); "umbel irregular mostly of 5 trifid branches, bracteas elliptical glabrous entire, glands 4 rounded, leaves sessile ovato-lanceolate entire or finely serrated hairy beneath, capsules minutely warted hairy, seeds obovate glossy." *Bab.: Forst. in Linn. Trans.* xvii. p. 536. E. pilosa *Bab. in E. Bot. Suppl.* t. 2787. E. pilosa β. *Hook. Br. Fl.* ed. 4. p. 327. E. epithymoides *Bab. Fl. Bath,* p. 44 (not *L.*).

Shady places (Prior Park Lane: *Messrs. Simms* and *Gibbs*) near Bath: *Lobel* before 1576, and *Johnson* in 1634. *Fl.* May, June. ♃.—I follow Mr. Babington in the character of this and the following species, and the excellent and accurate Mr. E. Forster for the name here adopted.

6. E. **coralloídes* L. (*Coral-like hairy Spurge*); "umbel 5-fid, then 3-fid and 2-fid, universal bracteas ovato-oblong the partial ones ovate, all villose, glands of the involucre 4 roundish, leaves broadly lanceolate minutely serrated at the apex villose, capsules nearly smooth woolly, seeds obovate minutely dotted and reticulato-rugose." *Bab. in Linn. Trans* xvii. p. 461, and in *E. Bot. Suppl.* t. 2837. E. pilosa *Ed. Cat.* p. 5; *Hook. Brit. Fl.* ed. 4. p. 327.

"Slinfold, Sussex, in hedges; naturalised?" *Mr. Borrer. Fl.* May, June. ♂? —"Distinguished from *E. palustris* most remarkably by its habit, and although its specific characters are less easily observed, yet, in my opinion, they are fully sufficient, permanent, and apparent, to separate it from its allies." *Bab. in E. Bot.*

** *Glands of the involucre pointed or angular.*

7. E. **E'sula* L. (*leafy-branched Spurge*); umbel of many principal branches and several scattered peduncles below, bracteas cordate, leaves membranaceous oblongo-lanceolate mostly entire, glands of the involucre with two horns, germens glabrous (scabrous, *Sm.*), seeds obovate smooth. *E. Bot.* t. 1399; *Ed. Cat.* p. 5.

Woods near Edinb., and at Slinfold, Sussex. Banks of Tweed near Coldstream. *Fl.* July. ♃.

8. E. **Cyparíssias* L. (*Cypress Spurge*); umbel of many principal branches and several scattered peduncles below, bracteas cordate, leaves linear entire membranaceous glabrous, glands of the involucre lunate, germens scabrous, seeds obovate smooth. *E. Bot.* t. 840; *Ed. Cat.* p. 5.

[1] While botanising in the South of Ireland, Mr. W. Christy learned from Dr. Taylor, that this plant is extensively used by the peasantry of Kerry for poisoning, or rather stupefying, fish; in the same manner as the exotic *E. piscatoria.* So powerful are its qualities, that a small creel or basket filled with the bruised plant, suffices to poison the fish for several miles down a river.

Woods; Staffordshire, Bedfordshire, Northumberland. *Fl.* June, July. ♃.—Readily distinguished by its narrow linear *leaves.*

9. E. *Parálias* L. (*Sea Spurge*); umbel of about 5 principal branches often with inferior scattered ones, bracteas cordate concave, leaves coriaceous obovato- and linear-lanceolate (generally) imbricated glaucous entire concave, glands of the involucre (5) lunate, capsules wrinkled, seeds smooth. *E. Bot.* t. 195; *Ed. Cat.* p. 5.

Sandy sea-coast of England, and near Dublin; but not general. *Fl.* Aug. Sept. ♃.— *Stems* numerous from the same root, woody below. *Leaves* very closely imbricated, especially on the young shoots.

10. E. *Portlándica* L. (*Portland Spurge*); umbel with about 5 principal dichotomous branches and several inferior scattered ones, bracteas triangular-cordate, leaves membranaceous obovato-lanceolate generally obtuse and submucronate, glands of the involucre (4) lunate with two long points, capsule rough at the angles, seeds dotted (almost white). *E. Bot.* t. 441; *Ed. Cat.* p. 5.

Sandy sea-coast, in the extreme south and west of England; Wales; Isle of Man. South of Scotland. Dublin. *Fl.* Aug. ♃.—6—10 inches high. This is very rare, if not unknown, on the Continent.

11. E. *exígua* L. (*dwarf Spurge*); umbel of generally 3 principal branches, leaves linear-lanceolate as well as the bracteas rather rigid entire glabrous often truncate and mucronate, glands of the involucre with two horns, capsules nearly smooth, seeds wrinkled. *E. Bot.* t. 1336; *Ed. Cat.* p. 5.

Corn-fields, in a light soil, frequent. *Fl.* July. ☉.—4—6 inches high, branched at the base. *Seeds* small, white.

12. E. *Péplus* L. (*petty Spurge*); umbel of about 3 principal branches, bracteas ovate, leaves membranaceous broadly obovate on short stalks entire glabrous, glands of the involucre lunate the horns very long, germen somewhat winged, and scabrous, seeds dotted. *E. Bot.* t. 959; *Ed. Cat.* p. 5.

Cultivated and waste ground, abundant. *Fl.* July, Aug. ☉.

13. E. **Láthyris* L. (*Caper-Spurge*); umbel of 3—4 principal branches, bracteas cordato-acuminate, leaves submembranaceous 4-farious oblongo-lanceolate entire cordate at the base, glands of the involucre bluntly lunate, germen glabrous, seeds smooth. *E. Bot.* t. 2255; *Ed. Cat.* p. 5.

Thickets about Ufton, near Reading. East Marden, Essex: *Rev. G. E. Smith,* where, as near Reading, it grows among underwood, and is found only for 2 or 3 years after the periodical cutting: *Borrer.* Steep Holmes in the Severn. Crawfurdland, near Kilmarnock. Comrie Den, near Dunfermline: *Dr. Dewar. Fl.* June, July. ♂.

14. E. *amygdaloídes* L. (*Wood Spurge*); umbel of about 6 principal branches and several scattered peduncles below, leaves nearly membranaceous obovato-lanceolate hairy beneath attenuated at the base entire, bracteas perfoliated, glands of the invo-

lucre lunate, capsules minutely dotted, seeds smooth. *E. Bot.* t. 256; *Ed. Cat.* p. 5. E. sylvatica *L.*

Woods and thickets in England, especially in clayey soil. South of Ireland. *Fl.* March, Apr. ♃.—*Stems* red, almost shrubby.

15. E. **Charácias* L. (*red shrubby Spurge*); umbel of many principal downy branches with several peduncles below, bracteas broad perfoliate acute, leaves lanceolate, glands of the involucre lunate, germens scabrous, seeds smooth. *E. Bot.* t. 442; *Ed. Cat.* p. 5.

In Needwood Forest, Staffordshire. *Fl.* March, Apr. ♄.—A large and handsome species, not uncommon in gardens, whence it has been an outcast.

3. Búxus *Linn.* Box.

Monœcious. *Flowers* clustered, axillary.—*Barren fl. Perianth* single, of 4 leaves, 2 opposite ones smaller (with one *bractea* at the base). *Stam.* 4. Rudiment of a *germen.*—*Fertile fl. Perianth* as in the *barren fl.* (with 3 bracteas at the base). *Styles* 3. *Caps.* with 3 beaks, 3-celled; *cells* 2-seeded. —Name: altered from πυξος, the Greek name for this tree.

1. B. *sempervírens* L. (*common Box-tree*); leaves oval oblong retuse convex coriaceous shining, their stalks slightly hairy, anthers ovato-sagittate. *E. Bot.* t. 1341; *Ed. Cat.* p. 2.

Dry chalky hills, principally in the South of England. *Fl.* April. ♄. —A small *tree*, if suffered to attain its natural stature. A dwarf *var.* is extensively employed as edgings in gardens. The *wood* is of great value for turning, carving, and engraving upon.

Ord. LXXVI. URTICEÆ (including Artocarpeæ).

Flowers generally monœcious or dicœcious, scattered or amentaceous, or aggregated on a fleshy persistent receptacle. *Perianth* divided, persistent; or 0. *Stamens* definite, distinct, opposite the lobes of the perianth. *Anthers* curved inward in æstivation, and often opening with elasticity. *Ovary* free. *Ovule* solitary, erect or suspended. *Fruit* an *achenium* with 1 *seed*, often several combined and immersed in the persistent fleshy perianths or upon or within large fleshy receptacles. *Embryo* with or without *albumen.*—Trees, shrubs, *or* herbs, *with stipules, often stinging and sometimes milky;* affording Hemp in the tenacious fibre of the inner bark, as in some *Nettles*, and from the genus *Cannabis;* a narcotic bitter from the *Hop* and *Hemp.* The famous *Bread-fruit* is *Artocarpus incisa*, and the *Jack-fruit, A. integrifolia. Ficus* gives us the luscious *Fig* in *F. Carica*, and *Caoutchouc* in *F. elastica, &c. Contrayerva* is a *Dorstenia. Morus alba* produces the *Mulberry; M. tinctoria*, the dye called *Fustic. Broussonetia* is the *Paper Mulberry.* The famous *Poison tree* or *Upas* of Java is *Antiaris Toxicodendron. Galactodendron* (*Brosimum* Don)

utile is the *Cow-tree* of South America, from which flows a milk which is esteemed a most nutritive beverage by the natives.

1. Urtíca *Linn.* Nettle.

Monœcious or diœcious. — *Barren fl.* *Perianth* single, of 4 leaves, containing the cup-shaped rudiment of a *pistil.* *Stam.* 4. — *Fertile fl.* *Perianth* single, of 2 leaves. *Pericarp* 1-seeded, shining. — Named from *uro*, to *burn*; in allusion to its stinging property.

1. U. *pilulífera* L. (*Roman Nettle*); leaves opposite ovate serrated with transverse nerves, fertile flowers in globular heads. *E. Bot.* t. 148; *Ed. Cat.* p. 14.

Under walls and among rubbish, principally near the sea. In Norfolk and Suffolk. Ballylickey, S. of Ireland. *Fl.* June, July. ⊙. — The most venomous of our British *Nettles.*

2. U. *úrens* L. (*small Nettle*); leaves opposite elliptical with about 5 nearly parallel ribs, clusters of flowers sub-simple. *E. Bot.* t. 1236; *Ed. Cat.* p. 14.

Waste places and cultivated ground, frequent. *Fl.* June—Oct. ⊙.

3. U. *dioíca* L. (*great Nettle*); leaves ovate acuminate cordate at the base, clusters much branched in pairs mostly diœcious. *E. Bot.* t. 1750; *Ed. Cat.* p. 14. — β., *Ed. Cat.* p. 14.

Waste places, under walls and hedge-banks, frequent. *Fl.* July, Aug. ♃. — The *root*, boiled with alum, dyes yarn yellow; from the fibres of the stalk a kind of hemp is manufactured, as with the *U. cannabina* of N. America. In Scotland the young tops of nettles are boiled and eaten by the common people: "Nae doubt I suld understand my ain trade of horticulture, seeing I was bred in the parish of Dreepdaily, near Glasco', where they raise lang-kail under glass and force the *early nettles* for their spring-kail." — *Andrew Fairservice, in "Rob Roy."*

(The Ed. Cat. gives *Urtica Dodartii* L. as a native of Britain, but I do not find on what authority.)

2. Parietária *Linn.* Wall-Pellitory.

Polygamous. *Perianth* 4-fid, inferior. *Stam.* 4. *Filaments* of the *stam.* at first incurved, then expanding with elastic force. *Style* filiform. *Stigma* capitate, hairy. *Fruit* 1-seeded, enclosed by the enlarged perianth. (One or more of the central florets without stamens.) — Named from *paries*, a *wall*; the species frequently growing on old walls.

1. P. *officinális* L. (*common Pellitory-of-the-wall*); leaves ovato-lanceolate 3-nerved above the base, "involucre 2-leaved 7-flowered, the central one fertile, leaves of the involucre with 7 ovate segments." *Wilson: E. Bot.* t. 597; *Ed. Cat.* p. 9.

Old walls and waste places, among rubbish. *Fl.* during the summer months. ♃. — *Stems* often procumbent upon the wall, reddish, pubes-

cent. *Leaves* alternate. *Flowers* small, hairy, purplish, clustered in the axils of the leaves. "*Involucre* in 2 portions, of about 7 segments each, and between them is placed a fertile flower, whose perianth is entire, closely surrounding the pistil. In each portion of the involucre are 3 flowers apparently fertile" (*Wilson*), but of which the central one has only a pistil. The lateral ones have stamens and pistil. *Filaments* jointed, in which peculiarity exists the elastic property by which the *pollen* is so copiously discharged. This is remarkably the case in a hot summer's day. *Fruit* black, shining. *Pericarp* closely investing the seed. For a full account of the curious structure of the flowers of this plant see *Flora Londinensis.*

3. Húmulus *Linn.* Hop.

Dicœcious. — *Barren fl. Perianth* single, of 5 leaves. *Stam.* 5. *Anthers* with 2 pores at the extremity. — *Fertile fl. Scales* of the *catkin* large, persistent, concave, entire, single-flowered. *Perianth* 0. *Styles* 2. *Seed* 1. — Name: *humus, rich soil* or *mould;* in which the plant flourishes.

1. H. **Lúpulus* L. (*common Hop*). *E. Bot.* t. 427; *Ed. Cat.* p. 7.

Thickets and hedges in various places. *Fl.* July. ♃. — *Stems* long, weak and climbing, scabrous. *Leaves* petiolate, opposite, 3—5-lobed, serrated, veiny, rough. *Flowers* greenish-yellow. The fragrant bitter, so valuable in the manufacture of beer, resides in the *catkins*, or *cones* as they are often called, of the *Hop.*

Ord. LXXVII. ULMACEÆ.

Flowers perfect or polygamous, not in catkins. *Perianth* campanulate, inferior, often irregular. *Stamens* definite, inserted into the base of the perianth, and opposite to its segments, erect in æstivation. *Ovary* free, 2-celled. *Ovules* solitary, pendulous. *Stigmas* 2. *Fruit* 1- or 2-celled, indehiscent and membranaceous, or drupaceous. *Seed* solitary, pendulous, without *albumen.* — Trees *or* shrubs, *nearly allied to* Urticeæ, *with scabrous alternate stipulated leaves.*

1. Úlmus *Linn.* Elm.

Perianth single, inferior, persistent, 4—5-cleft. *Stam.* 5. *Capsule* compressed, winged all round (hence a *Samara*), 1-seeded. — Named, according to Théis, from the Anglo-Saxon *Elm. Ulm* is, however, still the German word for this tree.

(With the English species of this genus, I confess myself not to be well acquainted: and Scotland, so far as I can ascertain, possesses but one really native kind, the *broad-leaved Elm, Ulmus montana.* Dr. Lindley appears to have made them a particular object of his study, and on him I have relied for the following characters.)

1. U. *campéstris* L. (*common small-leaved Elm*); leaves rhomboid-ovate acuminate wedge-shaped and oblique at the base,

always scabrous above doubly and irregularly serrated, downy beneath, serrature incurved, branches wiry slightly corky, when young bright-brown pubescent, fruit oblong deeply cloven naked. *Lindl. Syn.* p. 226; *E. Bot.* t. 1886; *E. Fl.* v. ii. p. 20; *Ed. Cat.* p. 14.

Hampshire, Sussex, and especially in Norfolk, frequent. *Fl.* March, April. ♄. — A large *tree* with rugged *bark*. *Flowers* in dense heads, each subtended by a small scale or *bractea*. This yields the best wood of all the *Elms*, and is consequently employed for a great variety of purposes, particularly for articles that require to be exposed to moisture. — The Hertfordshire Elm is supposed by Dr. Lindley to be a *var.* of this.

2. U. *suberósa* Ehrh. (*common Cork-barked Elm*); leaves nearly orbicular acute obliquely cordate at the base, sharply regularly and doubly serrated always scabrous above, pubescent below, chiefly hairy in the axils, branches spreading bright brown, winged with corky excrescences, when young very hairy, fruit nearly round deeply cloven naked. *Lindl. Syn.* p. 226; *E. Bot.* t. 2161; *E. Fl.* v. ii. p. 21; *Ed. Cat.* p. 14. U. campestris *Lightf. Scot.* p. 151; *Hook. Scot.* i. p. 85.

Hedges in all parts of England (*Sm.*), and in Scotland; but scarcely indigenous. *Fl.* March. ♄. — Remarkable for the cork-like covering to the branches, which is full of deep fissures.

3. U. *májor* Sm. (*Dutch Cork-barked Elm*); leaves ovato-acuminate very oblique at the base, sharply doubly and regularly serrated, always scabrous above, pubescent below with dense tufts of white hairs in the axils, branches spreading bright brown winged with corky excrescences, when young nearly smooth, fruit obovate slightly cloven naked. *Lindl. Syn.* p. 226; *E. Bot.* t. 2542; *E. Fl.* v. ii. p. 21; *Ed. Cat.* p. 14.

Hedges in the neighbourhood of London, a doubtful native. (*Sm.*) *Fl.* March. ♄. — More corky in its bark even than the preceding, and probably not specifically distinct from it.

4. U. *carpinifólia* Lindl. (*Hornbeam-leaved Elm*); leaves ovate acute coriaceous strongly veined simply crenate serrate slightly oblique and cordate at the base shining but rather scabrous above, smooth beneath, branches bright brown nearly smooth, fruit — ? *Lindl. Syn.* p. 226; *Ed. Cat.* p. 14.

Four miles from Stratford-upon-Avon, on the road to Alcester: *Prof. Lindley.* ♄.

5. U. *glábra* Mill. (*smooth-leaved Elm*); leaves ovato-lanceolate acuminate doubly and evenly crenato-serrate cuneate and oblique at the base becoming quite smooth above, smooth or glandular beneath with a few hairs in the axils, branches bright brown smooth wiry weeping, fruit obovate naked deeply cloven. *Lindl. Syn.* p. 226; *E. Bot.* t. 2248; *E. Fl.* v. ii. p. 23; *Ed. Cat.* p. 14. — *β. glandulosa*; leaves very glandular beneath.

Lindl.: Ed. Cat. p. 14. — γ. *latifolia;* leaves oblong acute very broad. *Lindl.: Ed. Cat.* p. 14.

Woods and hedges, in Essex. In Scotland? — β. near Ludlow: *Prof. Lindley.* — γ. Claybury, Essex: *Mr. E. Forster. Fl.* March. ♄. — To this species Dr. Lindley thinks that the Downton Elm and Scampston Elm of the nurseries may probably belong.

6. U. *stricta* Lindl. (*Cornish Elm*); leaves obovate cuspidate cuneate at the base, evenly and nearly doubly crenato-serrate strongly veined coriaceous very smooth and shining above, smooth beneath with hairy axils, branches bright brown smooth rigid erect very compact, fruit —? *Lindl. Syn.* p. 227. — β. *parvifolia;* leaves much smaller less oblique at the base finely and regularly crenated acuminate rather than cuspidate. *Lindl.*

In Cornwall and North Devon; — β. less common. ♄.

7. U. *montána* Bauh. (*broad-leaved* or *Wych Elm*); leaves obovate cuspidate doubly and coarsely serrated cuneate and nearly equal at the base always exceedingly scabrous above, evenly downy beneath, branches not corky cinereous smooth, fruit rhomboid-oblong scarcely cloven naked. *Lindl. Syn.* p. 227; *E. Bot.* t. 1887; *E. Fl.* v. ii. p. 22; *Ed. Cat.* p. 14. U. campestris *Willd.*

Woods and hedges, frequent. Abundant in Scotland and certainly wild. *Fl.* March, April. ♄. — Distinguished at first sight by its large spreading *branches* and broad *leaves*, appearing just as the "hop-like fruit" comes to perfection. A variety is called the *weeping Elm.* The wood is of inferior quality. Of this species Dr. Lindley says that the *Giant Elm* and *Chichester Elm* are varieties. He observes, too, that it is often confounded by foreign Botanists with *U. pedunculata*, a very different species, not found in England, and closely related to *U. rubra* of N. America.

Ord. LXXVIII. AMENTACEÆ.

Flowers monœcious or diœcious, rarely perfect. — *Barren flowers* capitate, or amentaceous. *Stamens* inserted upon the scale, frequently monadelphous. *Anthers* 2-celled. — *Fertile flowers* fascicled, solitary or in close *catkins. Ovary* simple, rarely compound. *Stigmas* 1 or more. *Fruits* as many as there are *ovules*, bony or membranaceous. *Albumen* rarely any.— Trees *or* shrubs, yielding much of our best timber: the younger leaves stipuled. Bark astringent. *Cork* is the bark of a species of *Evergreen Oak; Galls*, excrescences occasioned by the puncture of an insect, are the produce of *Oaks*, and possess the astringent property in a highly concentrated state; the best are from *Quercus infectoria* of Asia Minor: *Q. Ilex* nourishes the *Coccus Ilicis* or *Kermes Insect*, which gives a scarlet dye, much inferior, however, to Cochineal. The Acorn-cups of *Q. Ægilops* are imported from the Levant, on account of their astringent and dyeing properties. — The *Amentaceæ* may naturally

be divided into 3 groups or sub-orders. I. BETULINEÆ: 1. BETULA, 2. ALNUS. II. SALICINEÆ: 3. SALIX, 4. POPULUS. III. CUPULIFERÆ: 5. FAGUS, 6. CASTANEA, 7. QUERCUS, 8. CORYLUS, 9. CARPINUS.

1. BÉTULA *Linn.* Birch.

Barren fl. in a cylindrical *catkin;* its scales 3-flowered. *Perianth* 0. *Stam.* 10—12. — *Fertile fl.* Scale of the *catkin* imperfectly 3-lobed, 3-flowered. *Perianth* 0. *Styles* 2. *Germen* compressed, with 2 cells, 1 of which is abortive. *Nuts* compressed, with a membranaceous margin, 1-seeded. — Name derived from *betu*, the Celtic name for the Birch.

1. B. *álba* L. (*common Birch*); leaves ovato-deltoid acute doubly serrated glabrous. *E. Bot.* t. 2198; *Ed. Cat.* p. 2.

Woods, especially in heathy soils and in mountainous countries. *Fl.* Apr. May. ♄. — There is a *var.* of this tree (*B. pendula* Roth: *Ed. Cat.* p. 2; *Lindl. Syn.* p. 229), with remarkably drooping branches, which are more verrucose than in the common appearance. It is not unfrequent in the Highlands of Scotland, and generally known by the name of the *drooping birch*. To this Scott alludes:

> "Where weeps the *Birch* of silver bark,
> With long dishevell'd hair."

The wood is tough and white, and employed for various purposes. Much is burnt into charcoal. Brooms are made of it, and well-known instruments of castigation. Of the bark, in some countries, hats and drinking cups are formed; and, what is more important, the oil obtained from the *degot*, or "*white rind*," is used in tanning the well-known *Russia leather*. It is, moreover, employed by the people of the same country as a vermifuge, and a balsam in the cure of wounds. A wine is made of the sap in Scotland. The whole tree diffuses an agreeable odour, and is noticed by Burns as the "*fragrant birk*."

(There is a *Betula glutinosa* Wallr. given in the *Ed. Cat.* as a distinct species, and a native of Britain; and this is all the information I can collect respecting it. The *B. glutinosa* of Wallroth is referred by other German writers to the *B. pubescens* Ehrh.; and by Koch to *B. Carpatica* Willd., which he makes the var. β. of *B. pubescens* Ehrh.: and this latter, again, Sir James Smith has, without any doubt, and not even as a variety, placed as a synonyme to our *B. alba*.)

2. B. *nána* L. (*dwarf Birch*); leaves orbicular crenate. *E. Bot.* t. 2326; *Ed. Cat.* p. 2.

In several parts of the Highlands of Scotland. Rare in the Lowlands. *Fl.* May. ♄. — This is a small shrubby plant, not exceeding 1—2 feet in height. The *leaves* are on short footstalks. *Fertile catkins* at the extremity of the branches, small. — Even this humble shrub the poor Laplander turns to use. It is almost all he meets with, in certain situations, that can be converted into fuel for cooking food and driving away the gnats; and, covered with rein-deer's skin, it serves him for a bed.

2. A'LNUS *Tourn.* Alder.

Flowers collected into imbricated *catkins.* — *Barren fl. Scale* of the *catkin* 3-lobed, with 3 *flowers. Perianth* single, 4-partite. — *Fertile fl. Scale* of the *catkin* subtrifid, with 2 *flowers. Perianth* 0. *Styles* 2. *Nut* compressed. — Name: derived from the Celtic, *al, near,* and *lan,* the *river-bank.*

1. A. *glutinósa* Gært. (*common Alder*); leaves roundish-cuneiform obtuse lobed at the margin and serrated somewhat glutinous downy in the axils of the nerves beneath. *Hook. in Fl. Lond.* n. s. t. 59; *Ed. Cat.* p. 1. Betula Alnus *L.: E. Bot.* t. 1508.

Wet meadows and moist grounds by water, frequent. — "The Alders dank that fringe the pool." *Fl.* March, April. ♄. — A well-known *tree,* whose *wood* is employed for various purposes and is particularly valuable for the piles of bridges, as it remains undecayed under water for a considerable length of time; thus the celebrated and ancient bridge called the Rialto, at Venice, is built on Alder piles; as are many large edifices at Amsterdam. The *bark* and *leaves* are employed in dyeing and tanning leather; the former for staining *sabots* or wooden shoes (which are also made of the tree) and fishermen's nets; its astringent quality strongly recommending it for the latter purpose. *Sterile catkins* long, large, and cylindrical, pendent, their *footstalks* branched. *Fertile catkins* small, ovate, with deep-red scales.

3. SÁLIX *Linn.* Willow, Sallow, and Osier.

Dicœcious. — *Barren fl. Scales* of the *catkin* single-flowered, imbricated, with a nectariferous gland. *Perianth* 0. *Stam.* 1—5. — *Fertile fl. Scales* of the *catkin* single-flowered, imbricated, with a nectariferous *gland. Perianth* 0. *Stigmas* 2, often cleft. *Caps.* 1-celled, 2-valved, many-seeded. *Seeds* comose. — Named from *sal, near,* and *lis, water,* in Celtic.

The many important uses, rendered by the different species of *Willow* and *Osier,* serve to rank them among the first in our list of economical plants. The larger kinds, which are, too, of the most rapid growth, yield timber and exceed 60 feet in height; whilst the least of them, which grows on the summits of our Highland mountains (*S. herbacea*), can scarcely be said to rise above the surface of the soil in which it vegetates. Many are in great request for baskets, hoops, and crates: their bark is used by the tanner, and that of one species (*S. Russelliana*) as a substitute for the true Peruvian Bark. A correct knowledge of the species, then, is of primary importance; no less to the cultivator than to the botanist. Yet there is not in the whole range of the vegetable creation, a genus liable to more variation at different periods of growth, in different soils and situations, and under different circumstances; so that the accurate determination of its species has baffled the researches of the ablest botanists. For myself, I acknowledge that I apply to the description of them for the present work with no feigned reluctance: the more genuine from a consciousness that in my *Flora Scotica,* I had unfortunately given offence to one who was infinitely my superior, both

in age and learning, the late estimable author of the *English Botany*, by stating my opinion too confidently in regard to the limits of species. I will not say that a more devoted attention to the subject has materially altered my view of the points in question; but I have here pursued a different line of conduct, and at least when the union of any two or more species may be considered a dubious procedure, I have adopted the species of my illustrious predecessor, and given my ideas (and those of other friends, when I could obtain them,) on the propriety of the measure, in language, I trust, not calculated to hurt the feelings of any one.

My able friend Mr. Borrer has materially aided me by specimens and by remarks; and no one has ever studied the Willows, whether in the growing or in the dried state, more deeply or with a less prejudiced mind. He has himself extensively cultivated them; but the richest collection of living Willows is, unquestionably, that at Woburn Abbey, Bedfordshire, which has given rise to a splendid work, the "*Salictum Woburnense*" of His Grace the late Duke of Bedford, of which a limited number of copies only have been printed. It is truly gratifying to the humbler botanist to find a man of that nobleman's exalted rank in society and the senate, not disdaining to take pleasure in the study [1] of nature, and even recommending it to the attention of others by works which a private individual could never accomplish. We have, in the *Salictum Woburnense*, a standard set of figures of all our native, amongst many exotic, species; which, together with those of *E. Botany*, do, it must be confessed, give to the British naturalist an advantage over all that Continental authors have published on the subject, and to them I refer in every instance and with great satisfaction. The arrangement of the species in the "*Salictum*" is due to the botanical skill and knowledge of Mr. Forbes, head gardener at Woburn, which His Grace has fully acknowledged: and that department does him great credit.

The arrangement here adopted of the British species is suggested by my friend Mr. Borrer. It is a natural one, undoubtedly, and, like all natural groups, difficult to be defined in words. [2]

[1] His Grace was first led to devote his attention to plants by a severe attack of illness, which unfitted him for the more important duties of his station; and "if in this pursuit," he says in a former and almost equally beautiful book, the *Hortus Ericæus Woburnensis*, "I have been able to beguile even a single hour of irksomeness, during a protracted period of sickness and suffering, I am abundantly grateful to that Providence which, in its universal dispensations, has permitted me to indulge in a pursuit at once so pleasing and so rational." Every succeeding year found this nobleman more charmed with botany and horticulture, and he was the liberal and disinterested patron, not only of many recent botanical works, but of several excellent practical botanists, who sacrificed their time and their health in collecting the vegetable treasures of distant parts of the world.

[2] It is with much satisfaction I am enabled to say that the Rev. J. E. Leefe, of Audley End, Essex, has, in a forward state of preparation, fasciculi of specimens of British willows for publication, in the determination and synonymy of which he will have the invaluable aid of the same distinguished botanist (Mr. Borrer) who has rendered so much service in the present arrangement.

i. Monandræ *Borr.*

Filament 1, *with a double anther, or, in* S. rubra, *forked upwards and bearing* 2 *anthers. Trees of low stature, or shrubs, with twiggy branches and more or less lanceolate and serrated leaves often broader upwards. Catkins very compact.* — "The wild and willowed shores of Teviot," Mr. Borrer has found to afford some puzzling varieties of this group.

1. S. *purpúrea* L. (*bitter purple Willow*); monandrous, decumbent, leaves lanceolate broadest upwards attenuated below serrated glabrous, germens ovate very pubescent sessile, stigmas ovate nearly sessile. *E. Bot.* t. 1388; *Salict. Wob.* p. 1. t. 1; *Ed. Cat.* p. 12.

Meadows between Thorpe and Norwich. Eskdale, Melrose. *Fl.* March. ♄. — A small *shrub*, with purple trailing *branches*. *Leaves* glaucous, especially beneath. *Fertile catkins* singularly compact. This, according to Sir Jas. E. Smith, is a valuable osier for basket-work and for plaiting into low close fences, its *bark* being so intensely bitter that hares and rabbits will not touch it.

2. S. *Hélix* L. (*Rose Willow*); monandrous, erect, leaves lanceolate broadest upwards attenuated below serrated glabrous, germens oblongo-ovate very pubescent sessile, style short, stigmas almost linear emarginate. *E. Bot.* t. 1343; *Salict. Wob.* p. 3. t. 2; *Ed. Cat.* p. 12.

Marshes and the banks of rivers. *Fl.* March, April. ♄. — In the herbarium, this can scarcely be distinguished from the preceding, except by its larger *catkins*, longer *germens* and *styles*, bifid *stigmas*, and yellow glossy *bark*. In a growing state, the plant is recognised by being upright and taller. The *fertile catkins* are represented much too broad in the *E. Bot.* figure, as Mr. Borrer observes. They are very accurate, according to my specimens, in the *Salictum Woburnense*. — The leaves and twigs, we are told, are less bitter than in the former, well adapted for basket-work (*Mr. Forbes*), and more ornamental in plantations.

3. S. *Lambertiána* Sm. (*Boyton Willow*); monandrous, erect, leaves lanceolate broadest upwards serrated glabrous, germens shortly ovate very pubescent sessile, stigmas ovate emarginate. *E. Bot.* t. 1359; *Salict. Wob.* p. 5. t. 3; *Ed. Cat.* p. 12.

First discovered on the banks of the Willy at Boyton, Wilts, and at Staines, by the late *Aylmer Bourke Lambert, Esq.:* and since in other parts of England; as near Icklingham, Suffolk; near Norwich; and at Henley-upon-Thames. Near Edinburgh. *Fl.* April. ♄. — Very nearly allied to the last, but distinguishable by its *leaves*, which are generally broader at the base, and the purplish glaucous hue of the young shoots.

4. S. * *Woollgariána* Borr. (*Mr. Woollgar's Willow*); monandrous, erect, leaves cuneato-lanceolate serrated glabrous, germens ovate very pubescent sessile downy, stigmas nearly sessile ovate scarcely emarginate. *Borrer in E. Bot. Suppl.* t. 2651; *Ed. Cat.* p. 12. S. monandra, *Salict. Wob.* p. 7. t. 4 (*excl. the syn. of Hoffm. except that of* t. 1. f. 1). S. monandra *var. Hoffm. Hist. Sal.* v. i. p. 21. t. 1. f. 1.

About Lewes, Sussex, in osier-holts, but scarcely wild. At Kingston-upon-Thames, apparently wild. *Fl.* May. ♄.— Under *S. monandra* are included by Hoffm., not only *S. purpurea* and *S. Helix*, but also, according to Mr. Borrer, our present individual, distinguishing it however as a *var.*; as such, therefore, it had been long known to Mr. Borrer and the late Mr. Woollgar, though the latter gentleman was so far of opinion that it was a distinct species, that he used to call it *S. cuneifolia*, from the shape of its *leaves*, especially the upper ones. The name *monandra* can now scarcely be retained without creating much needless confusion, and I gladly adopt that given by Mr. Borrer in compliment to a gentleman who supplied Sir J. E. Smith with several of his willows and who formed his opinion upon the species from long and accurate observations. The present one is alluded to in the *E. Fl.* under *S. Lambertiana*, with which it agrees in the *stigmas;* while the *catkins* are most like those of *S. Forbyana* and of a peculiarly soft texture. In the Willow-ground at Woburn Abbey, whither it was sent by Mr. Forster as *S. monandra*, and consequently published under that name in the "*Salictum*," it attained only 6 feet in five years. Mr. Forbes observes that its shoots and twigs much resemble those of *S. Helix*, while the leaves and stigmas are widely different.

5. S. *Forbyána* Sm. (*fine Basket Osier*); monandrous, erect, leaves with small downy stipules lanceolate-oblong serrated glabrous, style equal in length to the linear divided stigmas. *E. Bot.* t. 1344; *Salict. Wob.* p. 9. t. 5; *Ed. Cat.* p. 12.

Meadows and osier-grounds at Fincham, Norfolk (*Rev. Jos. Forby*), and near Lynn. Cambridgeshire, truly wild: *Sm. Fl.* April. ♄.— *Stems* yellowish-green, glossy. Allied to *S. Helix*, especially in the fructification; but differing in foliage. This species is much esteemed by basket-makers for the finer sorts of wicker-work.

6. S. *rúbra* Huds. (*green-leaved Osier*); stamens 2 combined at the base, leaves linear-lanceolate broader in the fertile plant, acuminated serrated glabrous green on both sides, capsules oblongo-ovate very pubescent sessile, style elongated, stigmas linear undivided. *E. Bot.* t. 1145; *Salict. Wob.* p. 11. t. 6; *Ed. Cat.* p. 12. S. fissa *Hoffm.*

Low meadows and osier-holts, but rare; Maidenhead; Windsor; near Salisbury; Cambridgeshire; Carlisle. Frequent in hedges and osier-grounds, Scotland. *Fl.* April, May. ♄.— A small *tree*, with longer and more lanceolate and acuminated *leaves* than any other in the present group: in the latter particular coming near, as Sir J. E. Smith remarks, to *S. viminalis*, but wanting its dense white pubescence. The *stamens* are always more or less combined, below only, into one filament, as in *S. Croweana*, which in other respects is quite a different plant.

ii. Triandræ *Borr.*

Stam. 3. *Leaves lanceolate, approaching to ovate, with evident deciduous stipules, serrated, glabrous. Catkins lax. Germens stalked, mostly glabrous.— Most of the sp. constitute excellent Osiers, and become trees if left to themselves.*

7. S. *unduláta* Ehrh. (*sharp-leaved triandrous Willow*); triandrous, leaves lanceolate acuminated serrated glabrous, ger-

mens stalked ovato-acuminate, style as long as the linear bifid stigmas, scales very villous. "*Ehrh. Beitr.* v. vi. p. 161; *Arb.* 108;" *Ed. Cat.* p. 12. S. lanceolata *Sm.: E. Bot.* t. 1436; *Salict. Wob.* p. 27. t. 14.

Near Lewes, Sussex (the fertile plant): *Mr. Borrer*, who does not regard it as a native there. Angus-shire. *Fl.* April, May. ♄.—A small *tree*, which casts its *bark* annually. It is cultivated and cut down every year for the use of basket-makers; but Mr. Forbes observes that it is not so well calculated for the finer sorts of wicker-work as *S. triandra*. Dr. Meyer of Göttingen has sent me specimens of the *S. undulata* of Ehrh., compared with the Ehrhartian Herbarium; and Mr. Borrer is satisfied that they are identical with Smith's *lanceolata;* at least with the Sussex specimens communicated by Mr. Woollgar to him, and which are probably the same as the fertile individuals figured in *E. Bot.* Indeed that station is the only one mentioned by Sir J. E. Smith as English. Mr. Borrer has received German specimens of *S. undulata* with silky germens, and these are probably the *S. undulata* of the *Salictum Woburnense*, which differs only in that respect, and in its more wavy leaves, from our present plant.

8. S. *triándra* L. (*long-leaved triandrous Willow*); triandrous, leaves oblong-lanceolate acute serrated glabrous, germens stalked oblong-ovate glabrous as well as the retuse scale, stigmas sessile retuse. *E. Bot.* t. 1435; *Salict. Wob.* p. 29. t. 15; *Ed. Cat.* p. 12.

Wet woods and osier-grounds, frequent. *Fl.* May and Aug. (*Sm.*) ♄.—This becomes a tall *tree*, 20—30 feet high if left to itself, casting its *bark* in autumn. It is abundantly cultivated and reckoned among the most valuable of the osiers. Mr. Forbes speaks of another state of the plant raised at Woburn, with larger and broader foliage: to which probably the leaves in *E. Bot.* may be referred; for they are much larger and broader than as described by that author. Mr. Woollgar used to distinguish this species by the dark-barked smooth shoots of the fertile plant. The sterile one he never met with at Lewes. Nearly allied is the *French Willow* of the Sussex osier-grounds, which grows (according to Smith) from 12 to 15 feet high, with *leaves* of a fine bright green and large yellow *catkins*, with *stamens* thrice the length of the scales; the leaves only half the size of *triandra*, with more slender footstalks and larger stipules. This was the *S. contorta* of Mr. Crowe's garden[1]; apparently the *Hoppeana* of *Willd.* (according to my specimens from Saltzburg), differing only in the notched or retuse *bracteas*. Mr. Borrer seems to think that it is the *S. triandra* of *Curt. Fl. Lond.*

9. S. *Hoffmanniána* Sm. (*short-leaved triandrous Willow*); triandrous, leaves shortly and broadly lanceolate acute slightly rounded at the base serrated glabrous, "germens stalked ovate compressed glabrous, stigmas nearly sessile. *E. Fl.* v. iv. p. 168; *Salict. Wob.* p. 31. t. 16; *Borr. in E. Bot. Suppl.* t. 2620; *Ed. Cat.* p. 12. S. triandra *Hoffm. Sal.* v. i. p. 45, t. 9, 10. t. 23. f. (*excl. the vars. ?*) *Borr.*

[1] According to Sir J. E. Smith: but Mr. E. Forster says that the *S. contorta* of Mr. Crowe is a willow called "*S. triandra undulata*" by Prof. Mertens.

Sides of streams, in Sussex (sterile plant) ; and near Cambridge. *Fl.* May. ♄. — A much-branched *shrub*, or crooked *tree ;* scarcely exceeding 12 ft. *Bark* of the *stem* and large *branches* deciduous, as in the other triandrous Willows. The humbler growth, the short, flat, lanceolate *leaves* more rounded at their base, with larger, rounded, ear-shaped *stipules*, distinguish this plant from *S. triand.*, with which it is said to agree in the fertile *fl.*, as it does in wanting the deep furrows of the young twigs, so remarkable in *S. amygdalina.*

10. S. *amygdálina* L. (*Almond-leaved Willow*) ; triandrous, leaves oblong-ovate acute rounded at the base serrated glabrous, germens much stalked ovate glabrous, stigmas sessile bifid, young branches furrowed. *E. Bot.* t. 1936 ; *Salict. Wob.* p. 35. t. 18 ; *Ed. Cat.* p. 11.

Banks of rivers and ditches ; Norfolk, Suffolk, Cambridgeshire ; Scotland. *Fl.* April, May and Aug. ♄. — A *tree*, growing to the height of 20 — 30 feet in the woods at Woburn, with much-furrowed, yellowish, young *branches.* The plant is considered inferior as an osier to *S. triandra*, which it approaches very nearly in botanical character. About Lewes, Mr. Borrer says both the fertile and barren plants are confined to the osier-beds, as are *S. triandra* and " *S. triandra undulata* " of Mertens.

iii. Pentandræ *Borr.*

Stamens more than 3, *usually* 5, *in each catkin, so numerous and long as to render the flowers, which too are in perfection at the same time with the foliage, quite handsome ; while the tree itself is the most ornamental of the whole genus. Germens glabrous. — Moderately-sized trees, with ample, glossy, fragrant foliage, exuding a resin from the glandular serratures of the leaves.*

11. S. *pentándra* L. (*Sweet Bay-leaved Willow*) ; stamens 5, leaves elliptical-lanceolate acuminated glanduloso-serrated glabrous with several glands at the base, germens lanceolate glabrous nearly sessile, style scarcely any, stigmas bifid. *E. Bot.* t. 1805 ; *Salict. Wob.* p. 67. t. 34 ; *Ed. Cat.* p. 12. S. Meyeriana *Borr. in Br. Fl. ed.* 3. (not *Willd.*)

Banks of rivers and watery places ; most frequent in the N. *Fl.* May, June. ♄. — 18 — 20 ft. high. Its large and copious, shining foliage almost gives this plant the appearance of an evergreen. *Sterile catkins* broad, fragrant, as well as the leaves. The tough flexible shoots, Mr. Borrer says, are good for basket-work. — Mr. Borrer doubts if the American *S. lucida* (*Salict. Wob.* t. 32) be different from this ; and Mr. Forbes states that species to have been confounded in gardens with the following.

iv. Fragiles *Borr.*

Stamens 2 (*as in the following groups*). — *Trees of considerable size, with lanceolate, glabrous, serrated, stipulated leaves, and very lax catkins with elongated more or less stalked glabrous germens.*

12. S. *decípiens* Hoffm. (*white Welsh*, or *varnished Willow*) ; leaves lanceolate pointed serrated very glabrous, floral ones partly obovate and recurved, footstalks somewhat glandular, germens tapering stalked glabrous, style longer than the cloven

stigmas, branches smooth highly polished. *Sm.: E. Bot.* t. 1937; *Salict. Wob.* p. 57. t. 29; *Ed. Cat.* p. 12.

Low meadows, moist hedges and osier-grounds, in several parts of England. Collinton woods, Edinb. *Fl.* May. ♄.—Of this I am only acquainted with the sterile plant; nor has Sir J. E. Smith, nor Mr. Forbes, figured any other. It is described as a lofty *tree;* when treated as an *Osier*, producing, for a few years, good rods for basket-work, but gradually becoming shorter, and not worth cultivating. Many botanists, it is stated in *E. Fl.*, have confounded this with *S. fragilis*, to which it is referred in *Fl. Brit.* Mr. Borrer observes that it is the *S. amerina* of Walker.

13. S. *frágilis* L. (*crack Willow*); leaves ovato-lanceolate acute serrated glabrous, germens shortly pedicellate oblong-ovate glabrous, style short, stigmas bifid, scales pubescent and much ciliated. *E. Bot.* t. 1807; *Salict. Wob.* p. 53. t. 27; *Ed. Cat.* p. 12 (not of *Woodville? and other medical writers?*).

Banks of rivers and marshy ground, frequent. *Fl.* Apr. May. ♄.—"A tall bushy-headed *tree*, whose branches are set on obliquely, somewhat crossing each other, not continued in a straight line, by which it may readily be distinguished in winter:" *Sm.* These branches are fragile, especially in spring, and hence the wood is of little or no value. Whatever good qualities have been attributed to the present species, Sir J. E. Smith observes, belong to the following, which has often been mistaken for it.

14. S. *Russelliána* Sm. (*Bedford Willow*); leaves lanceolate tapering at each extremity strongly serrated glabrous very pale beneath, germens stalked lanceolate acuminate glabrous, style as long as the bifid stigmas, scales narrow-lanceolate slightly ciliated or pubescent. *E. Bot.* t. 1808; *Salict. Wob.* p. 55. t. 28. *and frontispiece (the tree)*; *Ed. Cat.* p. 12. S. fragilis *Woodville? and other medical writers.*

Marshy woods, osier grounds, and in many places. *Fl.* Apr. May. ♄.—This extremely valuable *tree* was first brought into notice by his Grace the late Duke of Bedford, and thence most appropriately honoured by bearing his name. Of the size to which it reaches, some interesting details are given in the present Duke of Bedford's Introduction to the *Salictum Woburnense*. It was one of this species, the favourite tree of Dr. Johnson at Litchfield, which was very recently destroyed by a hurricane, after it had attained a height of 60 feet, and a girth of 13 feet. Another tree at Gordon Castle, Scotland, at the age of 61, was 57 feet high, and above 11 feet in its greatest circumference. Great as is the affinity, botanically speaking, between this plant and the preceding, its properties are wholly different. So important is it as a plantation tree, that Mr. Lowe, in his Survey of the County of Notts, states that, at 8 years growth, the poles yielded a net profit of 21*l.* per acre; and in 2 years longer, they would probably have produced 30*l.* per acre. The late George Biggin, Esq. of Cosgrove Priory, an able chemist, ascertained that the *bark* of this tree contains the tanning principle in a superior degree to that of the Oak: and it is supposed that the medical properties said to belong to *S. fragilis*, are attributed to it by mistake, and should be referred to the present. The *leaves* are

of a peculiarly handsome shape when in perfection, deeply serrated and much attenuated.

v. Albæ *Borr.*

Trees of considerable elevation, having lanceolate serrated leaves, with long silky hairs beneath, especially in a young state, which give to the foliage a light or whitish hue: the serratures glandular. Catkins lax: germens glabrous.

15. S. *álba* L. (*common white Willow*); leaves elliptical-lanceolate regularly glanduloso-serrate acute silky beneath often so above, germens ovato-acuminate nearly sessile glabrous, stigmas nearly sessile short recurved bifid, scales short pubescent at the margin. *E. Bot.* t. 2430; *Salict. Wob.* p. 271. t. 136; *Ed. Cat.* p. 11. — β. under-side of the leaves less silky, often quite glabrous. *Ed. Cat.* p. 11. S. cærulea (blue Willow), *E. Bot.* t. 2431; *Salict. Wob.* p. 273. t. 137.

River-sides, moist woods, &c. *Fl.* May. ♄. — A well known *tree*, of considerable size, and of which the *var.* β. is of such exceedingly rapid growth, that it is by many still deemed a distinct species; and Mr. Forbes observes that the new *leaves*, after the wood has been cut, are of a larger size, and, as well as the twigs, of a darker hue than the real *S. alba*. They seem to be alike valuable for their *bark* and their timber, and are both amply deserving of cultivation.

16. S. *vitellína* L. (*yellow Willow*, or *golden Osier*); leaves lanceolate with glandular serratures acuminate more or less silky beneath, often so above, germens lanceolate sessile glabrous, style short, stigmas bipartite, scales lanceolate. *E. Bot.* t. 2430; *E. Fl.* v. iv. p. 182; *Salict. Wob.* p. 39. t. 20; *Ed. Cat.* p. 12.

Hedges and osier-grounds, in many places. *Fl.* May. ♄. — This is rendered striking by the bright yellow colour of its *branches*, and the *leaves* often partake of the same tint. With this exception, the plant, as Mr. Borrer observes, is "*extremely* nearly allied to *S. alba*." Haller, too, unites them. It is used as an *Osier* in many places.

vi. Griseæ *Borr.*

17. S. *petioláris* Sm. (*dark long-leaved Willow*); leaves lanceolate serrated when young grey with short silky hairs especially beneath, germens stalked ovato-lanceolate very silky, stigmas divided nearly sessile, scales villous scarcely longer than the pedicel. *E. Bot.* t. 1147; *Salict. Wob.* p. 45. t. 23; *Ed. Cat.* p. 12.

Scotland. Angus-shire. *Fl.* Apr. ♄. — A very distinct species, with dark *branches*, and dusky-coloured, greyish-green *leaves*, silky with short soft hairs: in a young state even silvery beneath. The *catkins* are scarcely an inch long, rather lax; much smaller in my specimens and in the *fig.* in *Salict. Wob.* than in *E. Bot.*, and remarkable for the lengthened stalks of the *germens* and dense silky covering of the latter. I have never seen native specimens.[1]

[1] Dr. Lindley says that this is not a British, nor even a European species.

vii. Rosmarinifoliæ *Borr.*

Small, erect shrubs. Leaves linear-lanceolate, entire, or with extremely minute, glandular teeth. Catkins short, lax. Germens stalked, silky.

18. S. *rosmarinifólia* L. (*Rosemary-leaved Willow*); leaves linear-lanceolate silky, the young ones especially, quite entire or with a few very minute glandular teeth, catkins shortly oblong curved lax, germens stalked silky lanceolate-acuminate, style about as long as the linear divided stigmas, scales short villous. *E. Bot.* t. 1365; *Salict. Wob.* p. 173. t. 87; *Ed. Cat.* p. 12.

Found by *Sherard.* Sent by *Mr. Dickson* to *Mr. Crowe.* (*Sm.*) *Fl.* Apr. ♄. — A slender, upright *shrub*, 2—3 feet high, with silky *leaves*, nearly glabrous in the adult plant. Whole plant, when dry, turning almost black, as does the following.

19. S. *angustifólia* Wulf.? (*little Tree Willow*); leaves linear-lanceolate nearly glabrous with minute glandular teeth, the young leaves silky glaucous beneath, catkins ovate erect, germens ovato-acuminate densely silky stalked, style about as long as the broad erect entire stigmas, scales very villous nearly as long as the young germens. *Ed. Cat.* p. 11. S. Arbuscula *Sm.: E. Bot.* t. 1366; *Salict. Wob.* p. 171. t. 86 (not of *Continental authors*).

Highlands of Scotland. Clova mountains. Near Dumfries. *Fl.* Apr. ♄. — Mr. Forbes has well observed that the present is closely allied to the last, and he is even disposed to consider them the same; and it is certainly a matter of surprise, that two plants so much resembling each other, should be placed so far apart as they are in *E. Fl.* Still I agree with Mr. Borrer in thinking them distinct, though the difference lies almost entirely in their *germens;* these are shorter in the present plant, with denser, less glossy and less truly silky hairs, with ovate and quite entire *stigmas*, and more shaggy scales. Although this may be, as Sir J. E. Smith assures us, the *S. Arbuscula* of *Linn. Herb.*, yet Mr. Borrer, on a recent examination, has come to a different opinion, and the plant is quite at variance with the *Arbuscula* of other Continental authors, and with the figures both of Linnæus and Wahlenberg, which represent the leaves distinctly serrated. This latter is well figured in the *Salictum Woburnense*, t. 138, having been introduced to the gardens at Woburn by Lord John Russell, from Switzerland. The name of our plant, I have, at the suggestion of Mr. Borrer, changed to *S. angustifolia*, as being, probably, the plant of Wulfen.

viii. Fuscæ *Borr.*

Small shrubs, with generally procumbent stems and leaves between elliptical and lanceolate, mostly silky beneath, nearly entire. Catkins ovate or cylindrical. Germens silky, stalked. — The habit of S. fusca *rather approaches the* Monandræ *group.*

20. S. *Doniána* Sm. (*Donian Willow*); leaves partly opposite obovato-lanceolate acute slightly serrated even livid and somewhat silky beneath, stipules linear, branches erect, catkins erect cylindrical, germens stalked silky longer than the obovate

scale. *E. Fl.* v. iv. p. 213; *Borrer in E. Bot. Suppl.* t. 2599; *Salict. Wob.* p. 169. t. 85; *Ed. Cat.* p. 12.

Scotland. *Fl.* May. ♄. — *Shrub* 6 feet or more high, resembling *S. purpurea*, but the *sterile flowers* are unknown, and Mr. Borrer considers it correctly placed in the present division, on account of its stalked germens which have little resemblance to those of the *Monandræ*, but are closely analogous to those of *S. fusca*, to which species he thinks there is considerable affinity in the foliage also.

21. S. *fúsca* L. (*dwarf silky Willow*); leaves elliptical or elliptic-lanceolate acute entire or with minute glandular serratures somewhat downy glaucous and generally very silky beneath, germens upon a long stalk lanceolate very silky, stigmas bifid, stems more or less procumbent. *Ed. Cat.* p. 12. S. repens *Hook. Scot.* 1. p. 284. — α. stem much branched upright, decumbent below, leaves elliptical-lanceolate. S. fusca, *E. Bot.* t. 1960; *Salict. Wob.* p. 155. t. 83. — β. stem depressed with short upright branches, leaves elliptic-lanceolate. *Ed. Cat.* p. 12. S. repens, *E. Bot.* t. 183 (*with young leaves only*); *Salict. Wob.* p. 167. t. 84. — γ. stem prostrate with elongated straight branches, leaves elliptic-oblong. *Ed. Cat.* p. 12. S. prostrata[1], *E. Bot.* t. 1959; *Salict. Wob.* p. 163. t. 82. — δ. stem recumbent, leaves elliptical. *Ed. Cat.* p. 12. S. fœtida, *E. Fl.* v. iv. p. 208. S. adscendens, *E. Bot.* t. 1962; *Salict. Wob.* p. 159. t. 80. *Subvar.* leaves smaller. S. fœtida β., *E. Fl.* v. iv. p. 208. S. parvifolia, *E. Bot.* t. 1961; *Salict. Wob.* p. 161. p. 81. — ε. stem procumbent, leaves elliptic-lanceolate. *Ed. Cat.* p. 12. S. incubacea *Linn.*: *E. Fl.* v. iv. p. 212 (*excl. of all the other syns.? Borr.*); *Borrer in E. Bot. Suppl.* t. 2600. — ζ. stem erect or spreading, leaves elliptical with a recurved point very silvery beneath. *Ed. Cat.* p. 12. S. argentea, *E. Bot.* t. 1364; *E. Fl.* v. iv. p. 207.

Moist and dry heaths, moors and sandy situations. *Fl.* Apr. May. ♄. — I am happy to learn, from Mr. Borrer, that he not only consents to the union of the above-mentioned species of other authors, but has suggested the order of their arrangement; with the single exception of *S. fusca* of *Sm.*, which he is disposed to consider different from that of *Linn.*, at least as seen growing in the garden; for he allows that "the dried specimens show no character;" in which latter opinion I cordially agree with him. — The plant itself is usually a small procumbent *shrub*, with rather long straight *branches*; but varying exceedingly, according to situation and other circumstances, as do the *leaves* also, which are more or less glabrous above, and more or less silky beneath where the nerves are prominent.

ix. Ambiguæ *Borr.*

22. S. *ambígua* Ehrh. (*ambiguous Willow*); leaves obovato-oblong slightly serrated upwards downy above, soft and silky veiny beneath, catkins lax, germens lanceolato-subulate very

[1] The Epping Forest "*prostrata*," in *E. Fl.*, is, on the authority of Mr. E. Forster, one of the varieties of *S. ambigua*.

silky upon long hairy stalks, style more or less elongated, stigmas entire or divided obovate. *E. Bot. Suppl.* t. 2733; *Ed. Cat.* p. 11. — α. stigmas sessile or nearly so, leaves moderately hairy or silky. S. ambigua *Ehrh.* and *Willd.* (*Borrer*), not of *Pursh*, whose plant Mr. Borrer says is very near S. fragilis, taller *var.* S. proteifolia *Schleich.*: *Salict. Wob.* p. 149. t. 75. — β. stigmas sessile or nearly so (quite entire), leaves obovate very silky on both sides. *Ed. Cat.* p. 11. — γ. style elongated, leaves oblong moderately hairy or silky. *Ed. Cat.* p. 11. S. spathulata *Willd.* (*Borr.*) S. versifolia *Wahl. Lapp.* p. 271. t. 18. f. 2; *Seringe, Saules de la Suisse*, n. 66.

α. Epping Forest. Hopton, Suffolk. Isle of Staffa. — β. Bogs near Forfar. — γ. Epping Forest. Hopton, Suffolk; and between Balnagard and Aberfeldie, Scotland. *Fl.* May. ♄. — *Shrub* 3 to 5—6 feet high, with dingy-coloured *bark*, and hoary, more or less silvery *leaves*. Mr. Borrer was once disposed to consider the *S. ambigua* of *Ehrh.*, the *S. proteifolia* Schleich., and the *S. spathulata* of *Willd.*, distinct; but he subsequently was induced to unite the two former; and I think, judging from specimens communicated, by my friend, of the latter, that he will not think me very wrong for combining the three. They are altogether most *ambiguous* plants, and put on very different appearances in different stages of their growth. My *var.* β. is of the most peculiar aspect, and I have never seen any specimens but those gathered by Mr. Drummond.

x. Reticulatæ *Borr.*

23. S. *reticuláta* L. (*reticulated Willow*); leaves nearly elliptical-orbicular mostly glabrous remarkably reticulated with veins and glaucous beneath, germens sessile oblong-ovate downy, style short, stigmas bifid. *E. Bot.* t. 1908; *Salict. Wob.* p. 133. t. 67; *Ed. Cat.* p. 12.

Lofty mountains of the north of England, Wales? and especially Scotland. *Fl.* June, July. ♄. — *Stem* short, very woody, much branched, procumbent: when cultivated, forming a beautiful tuft of considerable extent, with its curiously reticulated and large handsome *leaves*. The *catkins* and *stems* have a reddish or purplish tinge. I possess this from Arctic America with long silky hairs on both sides of the *leaves*: the young foliage indeed is often floccose.

xi. Glaucæ *Borr.*

Small, erect, very closely allied shrubs; remarkable for their soft hairy and silky oblong-lanceolate leaves, often white and cottony beneath. Germens sessile, very downy, or silky.

24. S. *gláuca* L. (*glaucous Mountain Willow*); leaves ovato-lanceolate entire downy snow-white and very cottony beneath, germens sessile narrow-elliptical ovate very downy, stigmas nearly sessile bifid. *E. Bot.* t. 1810; *Salict. Wob.* p. 135. t. 68; *Ed. Cat.* p. 12.

Highlands of Scotland. Clova mountains. *Fl.* July. ♄. — Nearly allied to the following; but differing in the *germen*, which is shorter, more obtuse and with nearly sessile *stigmas*.

25. S. *arenária* L. (*downy Mountain Willow*); leaves oblong-lanceolate entire downy especially beneath, germens sessile lanceolate thickly downy with a very long style, stigmas linear often entire, scales very silky. *E. Bot.* t. 1809; *Salict. Wob.* p. 169. t. 70; *Ed. Cat.* p. 11. S. limosa *Wahl. Lapp.* p. 265. t. 16. f. 4.

Highland mountains, especially those of Breadalbane and Clova. *Fl.* June. ♄.—1—2 feet high, with dark-brown, glossy *bark*. *Leaves* clothed with silky down, slightly so above, more so beneath where they are almost white. *Germen* with a remarkably long, slender, dark-coloured *style*. *Scales* almost black, very villous with long silky hairs.

26. S. *Stuartiána* Sm. (*small-leaved shaggy Willow*); "leaves nearly entire ovato-lanceolate acute shaggy above densely silky somewhat cottony beneath, style as long as the almost sessile woolly germen, stigmas capillary deeply divided the length of the style." *E. Bot.* t. 2586; *Hook. Scot.* i. p. 283 (*under S. aren.*); *Salict. Wob.* p. 143. t. 72; *Ed. Cat.* p. 12. S. Lapponum *Walker*.

Breadalbane mountains: *Rev. Dr. Stuart*. Near the upper end of the burn of Fionlarig. *Fl.* July, Aug. ♄.—I regret that, often as I have visited the Breadalbane mountains, I have not been able to distinguish *S. Stuartiana* from the preceding. Mr. Borrer says, "the *leaves* are sharp at each end, grey with hairs above, even when full grown." So are many of my acknowledged specimens of *S. arenaria*. It was named in compliment to one of the best men and most learned scholars that Scotland has produced, the late Rev. Dr. Stuart of Luss.

xii. VIMINALES *Borr.*

Trees of a more or less considerable size; with long pliant branches and lanceolate leaves. Germens nearly sessile, hairy or silky; their styles elongated; their stigmas linear, mostly entire.

27. S. *viminális* L. (*common Osier*); leaves linear-lanceolate obscurely crenate white and silky beneath, stipules very small sublanceolate, branches straight and twiggy, germens upon very short stalks lanceolato-subulate, style elongated, stigmas long linear mostly entire. *E. Bot.* t. 1898; *Salict. Wob.* p. 265. t. 133; *Ed. Cat.* p. 12.

Wet places, osier grounds, &c., frequent. *Fl.* Apr. May. ♄.—This is held in great esteem for basket-work.

28. S. *stipuláris* Sm. (*auricled Osier*); leaves lanceolate very indistinctly crenate white and downy beneath, stipules large semicordate acute often with a tooth or lobe at the base, germens stalked lanceolate very downy, style elongated, stigmas linear undivided, scales very shaggy. *E. Bot.* t. 1214; *Salict. Wob.* p. 263. t. 132; *Ed. Cat.* p. 12.

Osier-holts, hedges and woods, near Bury St. Edmunds. *Fl.* March. ♄.—Allied to the preceding in *fructification*: differing in its large and coarser *leaves*, less white beneath, and with large, very remarkable *stipules*.

29. S. *Smithiána* Willd. (*silky-leaved Osier*); leaves lanceolate obscurely crenate white and covered with satiny pubescence beneath, stipules very small narrow acute, germens lanceolato-subulate very silky shortly stalked, style elongated, stigmas long linear mostly entire. *E. Fl.* v. iv. p. 229; *Salict. Wob.* p. 367. t. 234; *Ed. Cat.* p. 12. S. mollissima, *E. Bot.* t. 1509 (not *Ehrh.*).

Meadows and osier-grounds. About Bury. Glamorganshire. Near Warrington. Scotland. *Fl.* Apr. May. ♄.

30. S. *ferrugínea* And. MSS. (*ferruginous Willow*); "leaves thin lanceolate with wavy crenatures and small teeth minutely hairy on both sides, paler beneath, stipules small half-ovate, scales oblong-lanceolate, germen silky stalked, style about as long as the oblong stigmas." *Borr.: Salict Wob.* p. 255. t. 128; *Borrer in E. Bot. Suppl.* t. 2665; *Ed. Cat.* p. 12.

Near Carlisle; Fifeshire; and banks of the Thames, Nuthurst, Sussex: *Mr. Borrer*, to whom I am indebted for specimens, and who observes that it comes nearest to *S. Smithiana*. *Fl.* Apr. May. ♄.—It forms a bushy *shrub* 12—14 feet high, according to Mr. Forbes.

31. S. *acumináta* Sm. (*long-leaved Willow*); "leaves lanceolato-oblong pointed wavy finely toothed glaucous and downy beneath, stipules half-ovate then kidney-shaped, catkins cylindrical, germen stalked ovate hairy, style as long as the undivided stigmas." *Sm.: E. Bot.* t. 1434; *Salict. Wob.* p. 261. t. 131; *Ed. Cat.* p. 11.

Rather moist woods and hedges, frequent. *Fl.* Apr. ♄.—In my specimens, the *germens* and *scales* of the *catkins* are remarkably shaggy. Mr. Borrer, who observes that this is the *S. lanceolata* of Seringe, has never gathered the species wild, nor has Mr. Forbes, who, as well as Sir J. E. Smith, places it among the true *Sallows*, our "*Cinereæ* tribe."

32. S. *holoserícea* Willd. (*soft shaggy-flowered Willow*); leaves lanceolate acuminate serrated glabrous above, pale downy and strongly veined beneath, catkins cylindrical, germens stalked densely clothed with silky wool, stigmas ovate sessile, scales (black) very shaggy. *Willd. Sp. Pl.* v. iv. p. 708?; *Bluff et Fing. Fl. Germ.* v. ii. p. 565; *Ed. Cat.* p. 12.

About Lewes, Sussex. *Fl.* Apr. May. ♄.—This is a plant which Mr. Borrer received from Sir J. E. Smith, marked *S. acuminata var. rugosa;* but which he thinks probably allied to the *S. holosericea* of Willd., and distinguishes it from the true *acuminata* by its sessile pale-coloured *stigmas* and *leaves* greener and more rugose above, and more strongly veined beneath. Mr. Forster says that Mr. Crowe regarded it as a *var.* of *S. Smithiana*, or as an undescribed species.

xiii. Cinereæ *Borr.*

Trees or low shrubs; with downy branches, and mostly obovate, grey, hoary, toothed, more or less wrinkled and stipuled leaves, very veiny be-

neath. Germens sericeo-tomentose. — This group is usually denominated the Sallows.

33. S. *cinérea* L. (*grey Sallow*); leaves obovato-elliptical sometimes approaching to lanceolate more or less glaucous above, beneath pubescent and reticulated with veins, the margins slightly recurved, stipules semicordate, germens stalked lanceolato-subulate silky, styles short, stigmas mostly entire. *E. Bot.* t. 1897; *Salict. Wob.* p. 249. t. 125; *Ed. Cat.* p. 12.

Banks of rivers and in moist woods, abundant. *Fl.* Apr. ♄. — A *tree* 20—30 feet high, of no beauty and little use.

34. S. *aquática* Sm. (*Water Sallow*); stem and branches erect, leaves slightly serrated obovato-elliptical minutely downy flat rather glaucous beneath, stipules rounded toothed, germens silky stalked, stigmas nearly sessile. *E. Bot.* t. 1437; *Hook. Scot.* i. p. 284 (*with S. cinerea*); *Salict. Wob.* p. 253. t. 127; *Ed. Cat.* p. 11.

Wet hedge-rows, swampy places, &c. *Fl.* Apr. ♄.

35. S. *oleifólia* Sm. (*Olive-leaved Sallow*); "stem erect, branches straight spreading, leaves obovato-lanceolate flat rather rigid minutely toothed acute glaucous reticulated and finely hairy beneath, stipules small notched rounded, catkins oval nearly half as broad as long." *Sm.: E. Bot.* t. 1402; *Hook. Scot.* 1. p. 284 (*with S. cinerea*); *Salict. Wob.* p. 251. t. 126; *Ed. Cat.* p. 12.

Abundant in Norfolk; about Tunbridge, as well as in other parts of England, and in Scotland. *Fl.* March. ♄. — Mr. Forbes is disposed, with Sir J. E. Smith, to consider this and the two preceding species really distinct. Mr. Borrer says, "I do not venture to unite the three, although I could never satisfy myself as to their characters. They all vary much in foliage and in fructification."

36. S. *aurita* L. (*round-eared Sallow*); leaves obovate repando-dentate wrinkled with veins more or less pubescent very downy beneath, tipped with a small bent point recurved at the margins, stipules roundish semicordate, germens lanceolato-subulate stalked silky, style very short, stigmas generally entire. *E. Bot.* t. 1487; *Salict. Wob.* p. 247. t. 124; *Ed. Cat.* p. 12.

Moist woods and thickets, abundant. *Fl.* May. ♄. — A small bushy *tree;* with straggling *branches*. "One of the least equivocal species; although its *leaves* vary in length and in roundness. They are usually much wrinkled and vaulted, the *stipules* large and stalked:" *Borr. MS.*

37. S. *capréa* L. (*great round-leaved Sallow*); leaves ovato-elliptical acute serrated and waved at the margin downy beneath, stipules semicordate, germens pedicellate lanceolato-subulate silky, stigmas sessile undivided. *E. Bot.* t. 1488; *Salict. Wob.* p. 243. t. 122; *Ed. Cat.* p. 12.

Woods and dry pastures, common. *Fl.* April, May. ♄. — A small *tree*, distinguished by being in the spring loaded with handsome yellow *blossoms* before any of its *leaves* appear. The *catkins*, of both kinds,

are broader and shorter than in most of the species with crowded *flowers*. The Highlanders employ the *bark* to tan leather, and the handles of various agricultural implements are made of its *wood*. The bark has even been used with success, instead of that from Peru.

38. S. *sphaceláta* Sm. (*withered-pointed Sallow*); "stem erect, leaves elliptic-obovate even veiny entire or slightly serrated downy on both sides discoloured at the point, stipules half heart-shaped toothed erect, germs stalked ovato-lanceolate silky, stigmas notched longer than the style." *Sm.: E. Bot.* t. 2333; *Salict. Wob.* p. 241. t. 121; *Ed. Cat.* p. 12.

At Fionlarig, near the head of Loch Tay. *Fl.* April, May. ♄. — With this I am unacquainted, and Mr. Borrer doubts if it be a good species.

xiv. Nigricantes *Borr.*

A group as difficult to define as are the species which compose it. Many approach the last division very nearly, having more or less ovate or obovate leaves, but they are less wrinkled, and, when dry, generally become black, whatever care may be taken in the preservation of them. — Shrubs with long branches, or small trees. Germens glabrous or silky, stalked. Style more or less bifid.

39. S. *cotinifólia* Sm. (*Quince-leaved Sallow*); leaves elliptical-orbicular obsoletely toothed slightly downy above, more so glaucous and veiny beneath, germens stalked lanceolato-acuminate, style bifid, stigmas roundish notched. *E. Bot.* t. 1403; *Salict. Wob.* p. 227. t. 114; *Ed. Cat.* p. 12.

Norfolk; and near Glenluce and Forfar, Scotland. *Fl.* April, May. ♄. — A low *shrub*, with *leaves* 2 or more inches long, shaped almost like those of the garden *Rhus Cotinus*. In my plant the *styles* are distinctly and deeply bifid, each segment bearing a short emarginate *stigma*.

40. S. *hírta* Sm. (*hairy-branched Sallow*); "stem erect, branches densely hairy, leaves elliptic-heart-shaped pointed finely crenate downy on both sides, stipules half heart-shaped flat-toothed nearly glabrous." *Sm.: E. Bot.* t. 1404; *Salict. Wob.* p. 225. t. 113; *Ed. Cat.* p. 12.

Norfolk. Castle Eden, Yorkshire. *Fl.* April, May. ♄. — A small *tree*, in many respects approaching the preceding; the *leaves*, however, in my specimens, are less broad at the base, or, as Mr. Forbes justly observes, less heart-shaped. The *fertile catkin* was unknown to Sir J. E. Smith, as it was to the author of the "*Salictum*," till after the plate had been engraved. But I have a fertile branch from Mr. Borrer, as well as from Mr. Backhouse; in which, as in the preceding species, the *style* is bifid, though only for a very short way, bearing capitate emarginate *stigmas*.

41. S. *nígricans* Sm. (*dark-leaved Willow*); "leaves elliptic-lanceolate acute crenate glabrous with a downy rib above glaucous beneath, stamens 2 thrice the length of the hairy scales, germens lanceolate downy on a short downy stalk." *Sm.: E. Bot.* t. 1213; *Salict. Wob.* p. 73. t. 37; *Ed. Cat.* p. 12. S. phylicifolia β. *Linn.* (*Sm.*).

Fens, osier-grounds, woods, and thickets. Wrongay fen, Norfolk; and near Shobden Court, Herefordshire. *Fl.* April. ♄. — A large *shrub*, of which it does not appear that the *fertile catkins* have been found in Britain.

42. S. *Andersoniána* Sm. (*green Mountain Sallow*); leaves elliptic-oblong acute faintly crenato-dentate the upper ones chiefly subpubescent all glaucous beneath, stipules small subovate, branches minutely downy, germens stalked linear subulate glabrous, style elongated bifid at the extremity, stigmas bifid, scales fringed with a few long silky hairs. *E. Bot.* t. 2343; *Salict. Wob.* p. 217. t. 109; *Ed. Cat.* p. 11.

Sides of streams, among the Breadalbane mountains. Banks of the Tyne, below Newcastle: *Mr. Winch.* *Fl.* May, June. ♄.

43. S. *Damascéna* Forbes (*Damson-leaved Willow*); "young shoots densely hairy, leaves ovate or rhomboidal bluntly toothed silky when young at length nearly naked green on both sides, stipules half heart-shaped, catkins (in flower) longer than the floral leaves, scales obovate, germen stalked naked, style divided longer than the diverging stigmas." *Borr. Forbes in Salict. Woburn.* p. 285; *Borr. in E. Bot. Suppl.* t. 2709; *Ed. Cat.* p. 12.

South of Scotland and the Borders. *Fl.* (with the young leaves) April. ♄.—"Perhaps too near *S. Andersoniana* to be properly regarded as a species:" *Borr. l. c.* — It would gratify me, and I am sure all true lovers of Botany, if Mr. Borrer, who has so profound a knowledge of British *Willows*, *Roses*, and *Brambles*, would abolish, as species, all those which he thinks too nearly allied to others, instead of sanctioning them by his authority.

44. S. *Forsteriána* Sm. (*glaucous Mountain Sallow*); "stem erect, branches minutely downy, leaves elliptic-obovate acute crenate slightly downy glaucous beneath, stipules vaulted, catkins elongated (*Borr.*), germens stalked awl-shaped silky, style (at length bifid at the extremity) as long as the blunt emarginate (or bifid) stigmas." *Sm.: E. Bot.* t. 2344; *Salict. Wob.* p. 219. t. 110; *Ed. Cat.* p. 12.

Not rare in Scotland: *Mr. E. Forster:* on the Breadalbane mountains, along with the preceding. Heaton Dene, banks of the Tyne. *Fl.* May, June. ♄. — Similar to the last: distinguishable by its more or less silky *germens*, and, as Mr. Borrer observes, longer *catkins;* to which Mr. Forster adds the crowded *germens* and the greater dissimilarity of colour on the two sides of the leaf.

45. S. *rupéstris* Donn (*silky Rock Sallow*); "stem trailing, leaves obovate acute serrated flat even silky on both sides, stipules hairy, branches minutely downy, germens stalked awl-shaped silky, style as long as the blunt undivided stigmas." *Sm.: E. Bot.* t. 2342; *Salict. Wob.* p. 221. t. 111; *Ed. Cat.* p. 12.

Near Blanchland, Northumberland. Rocks of Craigalleach and Mael Ghyrdy, Scotland. *Fl.* May. ♄.— I do not understand this species, I

must confess; notwithstanding that Mr. Borrer has kindly assisted me with specimens. Indeed, he himself says "the *germen* is silky or naked, unless I unite different things." Mr. Forbes observes that it is very distinct from the two preceding, and that its *branches* are tough and useful for tying, &c.

46. S. *petræa* And. MS. (*dark-green Rock Sallow*); "erect, young shoots densely hairy, leaves oblong serrated carinate twisted reticulated with deeply sunken veins, beneath hairy glaucous at length pale green, stipules large half heart-shaped flattish with few glands, germen stalked naked wrinkled towards the point, style divided, longer than the cloven stigmas." *Borr.: Salict. Wob.* p. 193. t. 97; *Borrer in E. Bot. Suppl.* t. 2725; *Ed. Cat.* p. 12.

Breadalbane. Cultivated by the Duke of Bedford, Mr. Forster, and Mr. Borrer, from plants gathered in Britain by the late *Mr. G. Anderson*, who gave to the species the name of *S. petræa*. *Fl.* May. ♄. — My specimens have the *germens* lanceolate, acuminate, partially silky or glabrous. A *shrub* 6—7 feet high, according to Mr. Forbes.

47. S. *propínqua* Borr. (*flat-leaved upright Mountain Willow*); "erect, young shoots minutely pubescent, leaves elliptical obscurely crenate nearly flat with slightly sunken veins nearly naked on both sides pale-green beneath, stipules small vaulted glandulose, germen stalked silky towards the point, style longer than the notched stigmas." *Borr. in E. Bot. Suppl.* t. 2729; *Ed. Cat.* p. 12.

"Discovered in Britain by *Mr. Anderson*." *Fl.* —. ♄. — "Finding in this some apparently distinctive characters, we venture, after much hesitation, to add another presumed species to a section of the genus of which almost every species is doubtful:" *Borr.*, who further suggests that my specimens of *S. petræa* with partially silky germens, mentioned under the last species, probably belong to the present.

XV. BICOLORES *Borr.*

Leaves glabrous, or nearly so, dark green above, very glaucous beneath, between obovate and lanceolate. Germens very silky. — Twiggy bushes.

48. S. *tenúior* Borr. (*narrow-leaved intermediate Willow*); "leaves on slender stalks obovato-lanceolate acute obsoletely crenate flat naked on both sides glaucous beneath, stipules acute glandulose, catkins slender lax, scales acute longer than the silky stalk of the capsule, style longer than the ovate stigmas." *Borrer in E. Bot. Suppl.* t. 2650; *Ed. Cat.* p. 12.

Banks of the Lochy, near Killin. *Fl.* May. ♄. — Nearly allied to *S. laurina* (*S. bicolor*, E. Bot. t. 1806), with which, according to Mr. Borrer, Sir J. E. Smith seems to have united it.

49. S. *laúrina* Sm. in Linn. Tr. (*shining dark-green Willow*); "leaves elliptic-oblong acute waved and slightly serrated, nearly glabrous glaucous beneath, footstalks dilated at the base, stipules pointed serrated, scales obtuse hairy, half as long as the densely

downy ovate long-stalked germens." *Sm.: Ed. Cat.* p. 12. S. bicolor, *E. Bot.* t. 1806; *Salict. Wob.* p. 75. t. 38.

Woods and thickets, in various parts of Britain: *Sm. Fl.* April, May. ♄.—This Mr. Borrer considers a very distinct species.

50. S. *laxiflóra* Borr. (*loose-flowered Willow*); "upright, young shoots slightly pubescent, leaves naked flat broadly obovate narrowed at the base slightly toothed glaucescent beneath, upper ones acute, stipules small concave, catkins loose, germens stalked bluntish naked in the lower part, style as long as the linear divided stigma." *Borr. in E. Bot. Suppl.* t. 2749; *Ed. Cat.* p. 12.

Killin in Breadalbane. *Fl.* April. ♄.—Resembles *S. laurina* in the figure of the leaves; but that plant differs by its more acutely angled ramification; its mahogany-coloured twigs, densely cottony while young; the abundance of short appressed hairs on both surfaces of the young leaves; the more subulate germen, white all over with cottony hairs; and the shorter style, with short stigmas, the segments of which usually adhere together: *Borr.*

51. S. *radicans* Sm. (*Tea-leaved Willow*); leaves obovato- or elliptic-lanceolate with often wavy serratures glabrous glaucous beneath, germens lanceolate stalked very silky as well as the scales, style elongated, stigmas entire or bifid. *Hook. Scot.* i. p. 280; *Ed. Cat.* p. 12. S. phylicifolia *Linn.?* (not *Hook. Scot.*): *E. Bot.* t. 1958; *Salict. Wob.* p. 91. t. 46.

Breadalbane mountains of Scotland; first found by the late *Rev. Dr. Stuart. Fl.* May. ♄.—"As Linnæus, no doubt, included several other Willows under his *S. phylicifolia*, it would be better to call this by Smith's first name, *radicans*:" *Borrer.*

52. S. *Borreriána* Sm. (*Borrerian Willow*); leaves broadly lanceolate with shallow nearly even serratures very glabrous glaucous beneath, stipules lanceolate small, branches erect, catkins lax, germens lanceolato-subulate on long stalks quite glabrous, style long bifid, stigmas linear bifid, scales of the catkins acute shaggy. *E. Fl.* v. iv. p. 174; *Borr. in E. Bot. Suppl.* t. 2619; *Salict. Wob.* p. 89. t. 45; *Ed. Cat.* p. 12. S. phylicifolia *Hook. Scot.* i. p. 281; *Wahl. Lapp.* p. 270. t. 17. f. 2?.

Highland mountain-vallies; Glen Nevis and Breadalbane: first discovered by *Mr. Borrer. Fl.* April, before the leaves appear, and again, in the willow garden of Woburn, in July, when the plant is in full leaf. ♄.—Allied to the preceding, but distinguished by the accurate Mr. Borrer, even while its *fertile catkins* were unknown to him; these, which Mr. W. Wilson and myself have found at Killin, still further strengthen the character of the species.

53. S. *Davalliána* Sm. (*Davallian Willow*); "upright, leaves obovato-lanceolate flattish very acutely pointed obscurely toothed or serrated naked on both sides somewhat glaucous beneath, stipules minute, young shoots and leaf-stalks pubescent, calyx-scales obovate silky, germen stalked silky, style as long as the

divided stigmas." *E. Fl.* v. iv. p. 175; *Salict. Wob.* p. 93. t. 47; *Borr. in E. Bot. Suppl.* t. 2701; *Ed. Cat.* p. 12. S. phylicifolia *Willd.* (?) *omitting the syn.* (*Sm.*).

Brought from Scotland and cultivated by *Mr. G. Anderson*. *Fl.* May. ♄.—Mr. Borrer's specimen, which he believes to be the same as the *E. Fl.* plant, and which he received from the late Mr. Anderson (under the name of *S. tetrapla* Walk.), has the germens *very* silky. The same plant Mr. Borrer sent to Sir J. E. Smith as "*tetrapla* Walk.;" and also as being named (erroneously Mr. Borrer believes) "*S. phylicifolia* Willd."

54. S. *tétrapla* Walk. (*four-ranked Willow*); "leaves elliptic-oblong pointed unequally serrated nearly glabrous glaucous with prominent veins beneath, stipules half arrow-shaped, scales mostly shorter than the hairy stalks of the ovato-oblong glabrous germens, style as long as the stigmas." *Sm.*: "*Walk. Ess.* 468, *according to Mr. Anderson*;" *E. Fl.* v. iv. p. 177; *Borr. in E. Bot. Suppl.* t. 2702; *Ed. Cat.* p. 12.

Gathered in Breadalbane by *Mr. Borrer*. (*Sm.*) *Fl.* May. ♄.

55. S. *Weigeliána* Willd. (*Weigelian Willow*); "leaves elliptical rhomboidal or almost round with a short point obsoletely crenate naked on both sides glaucous beneath, stipules small, catkins on short stalks, bracteas small, scales oblong hairy longer than the hairy stalk of the germen, style longer than the stigmas." *Borr., Willd., Hook.*: *Br. Fl.* ed. 1. p. 420 (not of *Salict. Wob.*); *Borr. in E. Bot. Suppl.* t. 2656; *Ed. Cat.* p. 12. S. Wulfeniana, *E. Fl.* v. iv. p. 176 (not of *Willd.*); *Salict. Wob.* p. 95. t. 48 (*excl. the foreign syn.*).

Mountainous parts of Great Britain, not uncommon. Yorkshire and Westmoreland; Breadalbane, Scotland. *Fl.* April, May. ♄.—Mr. Borrer suspects that the fertile *S. Croweana* of *E. Fl.* belongs to this species.

56. S. *tenuifólia* Sm. Fl. Br. (*thin-leaved Willow*); "leaves elliptical acute serrated nearly glabrous glaucous beneath, stipules small or none, scales hairy, capsule ovate glabrous on a short smooth stalk." *Sm.*: *Fl. Brit.* p. 1052 (not *E. Bot. according to Mr. Borrer, which is S. bicolor of Ehrh.*, not *Sm.*); *E. Fl.* v. iv. p. 179; *Salict. Wob.* p. 99. t. 50 (*the true plant*); *Ed. Cat.* p. 12.

Above the bridge at Kirkby Lonsdale, 1783. *Fl.* May, June. ♄.—Of this Mr. Borrer observes that the best authenticated specimens he has seen scarcely differ from the preceding, but in having the *germen* and its stalk perfectly glabrous.

57. S. *nítens* And. MSS. (*shining-leaved Willow*); "leaves ovate or elliptical acute slightly serrated nearly naked with sunk veins above, naked and glaucous beneath, stipules small, catkins on short stalks, bracteas small, calyx-scales oblong hairy longer than the hairy stalk of the germen, style longer than the stigmas." *Borr.*: *E. Fl.* v. iv. p. 175; *Salict. Wob.* p. 87. t. 44; *Borrer in E. Bot. Suppl.* t. 2655; *Ed. Cat.* p. 12.

Found in Scotland by *Mr. G. Anderson.* Teesdale. *Fl.* April. ♄. — A bushy *shrub*, 10—12 feet high.

58. S. *Croweána* Sm. (*Crowean Willow*); stamens combined below, leaves elliptical slightly serrated quite glabrous glaucous beneath. *E. Bot.* t. 1146; *Salict. Wob.* p. 103. t. 52; *Ed. Cat.* p. 12.

Swampy meadows and thickets. Norfolk. N. of England. *Fl.* April, May. ♄. — Mr. Borrer presumes that the connate filaments were but an accidental monstrosity in that individual from which all the plants, that he has examined, have originated: and Mr. Forbes describes and figures in the "*Salictum*," a still more remarkable structure: "the barren *catkins* changing into fertile ones, with the *style* and *stigma* perfect, as in the *fertile floret*." He has watched the progressive change, and observed that the monadelphous filaments appeared a little thicker in the middle, where they were united and gradually became pistils. A similar alteration has been remarked by Mr. Borrer in *S. oleifolia*, and by Mr. R. Gee in *S. cinerea.* (See *E. Fl.* v. iv. p. 216 and 220.) Sir J. E. Smith describes the germens of *S. Croweana* as downy; Mr. Borrer finds them nearly glabrous, as figured in *Salict. Wob.*

59. S. *bícolor* Ehrh. (*two-coloured Willow*); leaves elliptical green and shining above glabrous and glaucous beneath serrated with oblique points, stipules crescent-shaped serrated, barren catkins copious bright yellow, filaments slightly bearded at the base. *Forbes: Ed. Cat.* p. 11. S. tenuifolia, *E. Bot.* t. 2186 (*as to figure*, not *Fl. Br.*); *Hook. Scot.* i. p. 282. S. floribunda *Forbes in Salict. Wob.* p. 107. t. 54.

Highlands of Scotland; in Glenlyon, 1810. Banks of the Ettrick. *Fl.* April, and again in July (*Forbes*). ♄. — I believe the sterile plant alone of this, is certainly known. In what Mr. Borrer considers to be its fertile state, the adult *leaves*, he says, are mostly quite without hairs, whilst those of the sterile plant are rather plentifully but inconspicuously sprinkled, especially on the under side: as *Mr. Forbes* indeed observes in the description of the young leaves of his *floribunda*, a plant received by him from Mr. E. Forster, as the *S. tenuifolia*, E. Bot.

60. S. *phillyreifólia* Borr. (*Phillyrea-leaved Willow*); leaves elliptic-lanceolate acute at each end strongly serrated naked on both sides glaucous beneath, stipules small, young shoots pubescent, scales oblong hairy longer than the glabrous stalk of the glabrous germen, style as long as the stigmas. *Borr. in E. Bot. Suppl.* t. 2660; *Ed. Cat.* p. 12.

Highland vallies of Scotland, in Inverness-shire and Perthshire. *Fl.* April. ♄. — "A beautiful and apparently distinct willow, bearing considerable resemblance in its foliage to *Phillyrea latifolia.* It differs from *S. bicolor* and *S. Dicksoniana*, which have leaves approaching to obovate with a point, and which are, for the most part, obsoletely serrated:" *Borr.*

61. S. *Dicksoniána* Sm. (*broad-leaved Mountain Willow*); "leaves elliptical acute slightly toothed glabrous glaucous beneath, young branches very glabrous, catkins ovate short erect,

germens stalked ovate silky, stigmas nearly sessile." *E. Bot.* t. 1390; *Salict. Wob.* p. 109. t. 55. f. 2; *Ed. Cat.* p. 12.

Scotland. *Fl.* April. ♄. — I remarked, in *Fl. Scot.*, that my specimens of this plant from Mr. Borrer did not accord with the *E. Bot.* figure, but closely resembled *S. radicans*. The same individuals have been reviewed by Mr. Borrer, and returned without any observation; from which I infer that they are what he still considers the true *Dicksoniana*. Now, these accord precisely with the *S. Dicksoniana* which the Duke of Bedford received from various collections as such; and the discrepance between it and the figure in *E. Bot.* did not escape the notice of Mr. Forbes, who has, in addition to the Woburn plant, represented a catkin and pistil from *E. Bot.* I can therefore only repeat what I have said in *Fl. Scot.*, that if *S. Dicksoniana* be a good species, I am quite unacquainted with it.

xvi. Vacciniifoliæ *Borr.*

Small, procumbent or rarely erect shrubs; with leaves bearing a considerable resemblance to those of a Vaccinium, *opaque, glaucous beneath. Germens downy, sessile.*

62. S. *vacciniifólia* Walk., Ess. (*Bilberry-leaved Willow*); leaves lanceolate-ovate serrated glabrous and even above, glaucous and silky beneath, capsules ovate silky, stems decumbent. *E. Bot.* t. 2341; *Salict. Wob.* p. 113. t. 57; *Ed. Cat.* p. 12. S. prunifolia β. *Hook. Scot.* i. p. 282. S. livida *Hook. Fl. Scot.* i. p. 281; *E. Fl.* v. iv. p. 199.

Highland mountains, not unfrequent. First found at the head of Annandale, and described by the late *Dr. Walker*. Hart-fell near Moffat. *Fl.* Apr. (*Sm., Forbes*) — June in the Highlands. ♄. — A humble and pretty little *shrub*, which I had referred to a variety of S. prunifolia. This and the 3 following are all very closely allied.

63. S. *carináta* Sm. (*folded-leaved Willow*); leaves ovate serrated glabrous glaucous beneath and frequently folded so as to form a keel, germens sessile oblong-ovate extremely silky, style short, stigmas emarginate. *E. Bot.* t. 1363; *Salict. Wob.* p. 117. t. 59; *Ed. Cat.* p. 12.

Highlands of Scotland. *Fl.* Apr.—June. ♄. — Two feet high. Taller and stouter than the last, with more upright *branches*, and longer and often keeled *leaves*.

64. S. *prunifólia* Sm. (*Plum-leaved Willow*); leaves ovate serrated more or less veiny glabrous glaucous beneath, germens sessile oblong-ovate extremely silky, style short, stigmas emarginate. *E. Bot.* t. 1361; *E. Fl.* v. iv. p. 193; *Salict. Wob.* p. 111. t. 57; *Ed. Cat.* p. 12. S. myrsinites *Lightf.* (not *Linn.*).

Highland mountains of Scotland, frequent. *Fl.* Apr.—June. ♄.

65. S. *venulósa* Sm. (*veiny-leaved Willow*); "leaves ovate serrated naked reticulated with prominent veins above rather glaucous beneath, capsules ovate silky, stem erect much branched." *E. Bot.* t. 1362; *Hook. Scot.* i. p. 282 (with S. prunifolia); *Salict. Wob.* p. 115. t. 58; *Ed. Cat.* p. 12.

Highlands of Scotland. *Fl.* Apr.—June. ♄. — Mr. E. Forster agrees with me in considering this only a *var.* of *S. prunifolia.* The last four species, if such they may be called, I have gathered on the Breadalbane mountains, for a succession of years, with blossoms in perfection in the month of June. In gardens, they flower in April.

xvii. Myrsinites *Borr.*

Small, bushy plants; with glossy, rigid, small, oval or broadly elliptical, serrated leaves, and downy germens.

66. S. *Myrsinites* L. (*green Whortle-leaved Willow*); leaves elliptical waved serrated shining often hairy with prominent veins, catkins short lax, germens sessile lanceolate loosely silky, style half their length, and as well as the linear stigmas bifid. *E. Bot.* t. 1360; *Salict. Wob.* p. 119. t. 60; *Ed. Cat.* p. 12. — β. leaves smaller narrower. *Ed. Cat.* p. 12. S. arbutifolia *Sm.* S. Myrsinites *Linn. Lapp.* t. 7. f. 6. t. 8. f. f.; *Fl. Dan.* t. 1054.

Highland mountains, but rare. Craigalleach. Brae-Riach. Clova mountains. — β. Craigalleach. *Fl.* June. ♄. — A low glossy bushy *shrub*, with thick, much branching *stems* and *leaves* which Wahlenberg, not inaptly, compares to those of *Betula nana*, and which frequently remain, withered indeed, till the following year, being much and prominently veined. The *flowers* appear when the plant is in full leaf. *Scales* of the *catkin* small, blackish, with long silky hairs. Foliage very dark, almost black when dry. My Craigalleach specimens agree not only with those from Lapland but also with one from the Linnæan Herb. in my possession.

67. S. *procúmbens* Forbes (*smooth-leaved alpine Willow*); leaves oval (rarely acute) obscurely serrated shining quite glabrous, germens nearly sessile lanceolate very silky, style very short cleft almost to the base, stigmas short bifid obtuse. *Salict. Wob.* p. 121. t. 61; *E. Bot. Suppl.* t. 2753; *Ed. Cat.* p. 12. S. lævis, *Br. Fl.* ed. 1. p. 482.

Highlands of Scotland; Glen Coe. Breadalbane mountains, 1801. Brae-Riach, one of the Cairngorum range. *Fl.* June. ♄. — A low *shrub*, bearing a considerable resemblance to the last, but I think truly distinct. I have long had from Mr. Winch both cult. and wild specimens. This, in all its parts, especially the foliage, *catkins* and *germens*, is twice the size of the preceding, with flatter *leaves*, less serrated at the margin and drying to a yellowish-brown colour. The *germen*, *style* and *stigma*, too, will be found to differ from those of *S. myrsinites*, and the scales are much longer and more hairy. It is a beautiful shrub, and has been cultivated for years in the Edinb. Bot. Garden, where it retains all its characters. This seems to be the *S. retusa* With. Bot. Arr. ed. 8. v. ii. p. 49, *with a fig.*

xviii. Herbaceæ *Borr.*

A minute shrub; remarkable for its small, few-flowered catkins.

68. S. *herbácea* L. (*least Willow*); leaves orbicular serrated glabrous shining veined, germens sessile lanceolate glabrous, style and stigmas bifid, catkins of few flowers. *E. Bot.* t. 1907; *Salict. Wob.* p. 123. t. 62; *Ed. Cat.* p. 12.

Snowdon and other Welsh mountains. On Skiddaw. Plentiful upon the summits of all the Highland mountains. *Fl.* June. ♄. — The least of our British species; though not so small as is generally supposed, for its *stems* divide and creep below the surface of the earth, scarcely rising an inch above. In the Botanic Garden of Edinburgh it has acquired a prostrate, woody stem, 2—3 feet long and nearly as thick as the little finger: *Dr. Graham.*

xix. Hastatæ *Borr.*

Low shrubs; with very broad leaves and exceedingly shaggy and silky catkins.

69. S. *hastáta* L. (*Apple-leaved Willow*); leaves broadly elliptical waved thin and crackling quite glabrous glaucous beneath, stipules large heart-shaped about as long as the footstalks, germens on a short stalk lanceolate acuminated glabrous, styles elongated, stigmas cloven, scales very shaggy with long silky hairs. *Salict. Wob.* p. 69. t. 35; *Ed. Cat.* p. 12. S. malifolia *Sm.: Fl. Brit.* p. 1053; *E. Bot.* t. 1617; *Salict. Wob.* p. 71. t. 36.

Scotland. Sands of Barrie, near Dundee. Norfolk? *Fl.* May. ♄. — 2—6 ft. high. Remarkable for its broadly elliptical, shortly acuminated *leaves*, large *stipules* and very silky or shaggy compact *catkins*, about 1½ inch long. Mr. Borrer assures me that *S. malifolia* Sm. is only a state of *S. hastata* Linn., with a more attenuated base to its leaf, and this opinion is confirmed by Mr. Forbes, who received from Sir J. E. Smith plants of *S. malifolia*, and found that the leaves of their vigorous shoots became cordate.

70. S. *lanáta* L. (*woolly broad-leaved Willow*); leaves broadly oval pointed entire shaggy glaucous beneath, catkins sessile clothed with long yellow silky hairs, germens nearly sessile lanceolate glabrous longer than the style, stigmas undivided. *E. Fl.* v. iv. p. 205; *Hook. in E. Bot. Suppl.* t. 2624; *Salict. Wob.* p. 141. t. 71. f. 2; *Ed. Cat.* p. 12. S. chrysantha, *Fl. Dan.* t. 1057?

Scottish mountains, rare. First found in Glen Callater by *Mr. G. Don.* Head of the Glen of Dole, 2 miles W. of Acharne, the uppermost farmhouse of Clova. Angus-shire. *Fl.* May. ♄. — About three feet high, with large pale greyish shaggy foliage, and *catkins* that may be reckoned among the handsomest of the genus. This species Wahlenberg considers the most beautiful in Sweden, if not in the whole world. "The splendid golden catkins," he justly observes, "at the ends of the young branches, light up, as it were, the whole shrub, and are accompanied by the tender foliage, sparkling with gold and silver." The young plant is clothed with copious, long, silky, yellowish hairs. Sir J. E. Smith refers to the *Fl. Dan. S. caprea* as this plant; but that has the *style* cleft and the *stigmas* bipartite. Again, in the *S. chrysantha* of the same work, though in other respects it represents our plant, there are 2 *styles* given in the plate; so that Mr. Forbes, with justice, doubts if it be the same. The *stamens* are 2 or 3 in the real *S. lanata*, with their filaments more or less combined.

Dr. Lindley, in the 2d edition of his Synopsis, following the arrangement of Koch, has reduced the British SALICES to 30; and they stand as follows: — § I. FRAGILES. 1. S. pentandra *L.* 2. S. cuspidata *Schultz* (*S. Meyeriana* Willd.) 3. S. fragilis *L.* (*S. decipiens* Hoffm.) 4. S. Russelliana *Sm.* 5. S. alba *L.* (*S. cærulea* Sm., *S. vitellina* L.) — § II. AMYGDALINEÆ. 6. S. amygdalina *L.* (*S. triandra* L., *S. Hoffmanniana* Sm.) 7. S. undulata *Ehrh.* (*S. lanceolata* Sm.) — § III. PURPUREÆ. 8. S. purpurea *L.* (*S. monandra* Ehrh., *S. Doniana* Sm., *S. Helix* L., *S. Woolgariana* Borr.) 9. S. rubra *Huds.* (*S. Forbyana* Sm.) — § IV. VIMINALES. 10. S. viminalis *L.* 11. S. stipularis *Sm.* 12. S. acuminata *Sm.* (*S. mollissima* Sm., *S. Smithiana* Willd.) — § V. CAPREÆ. 13. S. holosericea *Willd.* 14. S. cinerea *L.* (*S. aquatica* Sm., *S. oleifolia* Sm., *S. ferruginea* Borr.) 15. S. capræa *L.* (*S. sphacelata* Sm.) 16. S. aurita *L.* 17. S. livida *Wahl.* 18. S. phylicifolia *L.* (*S. Andersoniana* Sm., *S. Damascena* Borr., *S. nigricans* Sm., *S. rupestris* Sm., *S. Forsteriana* Sm., *S. hirta* Sm., *S. cotinifolia* Sm., *S. Borreriana* Sm.) 19. S. hastata *L.* (*S. Davalliana* Sm., *S. malifolia* Sm., *S. Wulfeniana* Willd.) 20. S. Arbuscula *Wahl.* (*S. phylicifolia* Sm., *S. radicans* Sm., *S. tetrapla* Walk., *S. Dicksoniana* Sm., *S. petræa* And., *S. laxiflora* Borr., *S. propinqua* Borr., *S. myrtilloides* Sm., *S. Weigeliana* Willd., *S. tenuifolia* Sm., *S. nitens* And., *S. tenuior* Borr., *S. laurina* Sm., *S. bicolor* Sm., *S. Croweana* Sm.) — § VI. ARGENTEÆ. 21. S. repens *L.* (*S. fusca* Sm., *S. argentea* Sm., *S. parvifolia* Sm., *S. ascendens* Sm., *S. incubacea* Thuill., *S. fœtida* Sm.) 22. S. rosmarinifolia *L.* (*S. incubacea* L., *S. Arbuscula* Sm., *S. angustifolia* Wulf.) 23. S. ambigua *Ehrh.*, (*S. prostrata* Sm.) — § VII. CHRYSANTHEÆ. 24. S. lanata *L.* — § VIII. FRIGIDÆ. 25. S. limosa *Wahl.* (*S. arenaria* Sm., *S. Stuartiana* Sm.) 26. S. glauca *L.* 27. S. prunifolia *Sm.* (*S. venulosa* Sm., *S. carinata* Sm., *S. vacciniifolia* Sm., *S. livida* Hook.) 28. S. Myrsinites *L.* (*S. retusa* Dicks., *S. arbutifolia* Willd., *S. lævis* Hook.) — § IX. GLACIALES. 29. S. reticulata *L.* 30. S. herbacea *L.*

4. PÓPULUS *Linn.* Poplar.

Dicœcious. — *Barren fl. Scales* of the *catkins* jagged. *Anthers* 8—30, arising from a turbinate, oblique, entire, single *perianth.* — *Fertile fl. Scales* of the *catkin* jagged. *Perianth* turbinate. *Stigmas* 4 or 8. *Caps.* superior, 2-celled, 2-valved, many-seeded. *Seeds* comose. — Name: *populus*, or the *tree of the people*, as it was esteemed to be in the time of the Romans, and of the French revolution.

1. P. *álba* L. (*great white Poplar* or *Abele*); leaves roundish-cordate lobed toothed glabrous above downy and very white beneath, fertile catkins ovate, stigmas 4. *E. Bot.* t. 1618; *Ed. Cat.* p. 10.

Moist and mountain woods. "A few stunted plants of *P. alba* compose all the trees of the Island of Lewes:" *M'Culloch. Fl.* Apr. ♄. — A large *tree*, with smooth *bark* and spreading *branches*; of very rapid growth. The *wood* is white and soft and only used for coarse work.

2. P. *canéscens* Sm. (*grey Poplar*); leaves roundish deeply waved toothed hoary and downy beneath, fertile catkins cylindrical, stigmas 8. *E. Bot.* t. 1619; *Ed. Cat.* p. 10.

Wet turfy meadows and dry heaths; frequent in Norfolk: (*Sm.*) *Fl.* March. ♄. — *Tree* tall and handsome; of slower growth than the preceding, and producing better *wood*.

3. P. *trémula* L. (*Aspen*); leaves nearly orbicular broadly toothed glabrous on both sides, stalks compressed, "stigmas 4 erect auricled at the base." *E. Bot.* t. 1909; *Ed. Cat.* p. 10.

Moist woods; frequent in Scotland, and even at an elevation of 1500 feet above the level of the sea, on Ben More, in Mull: *Mr. Trevelyan.* *Fl.* March, Apr. ♄. — This *tree* is well known by the tremulous movement of its *leaves* with the slightest breath of wind. The motion is aided by the compression of the stalk. The *bark* is said to be a favourite food of the beavers; and the *wood* serves for pack-saddles, milk-pails, &c. Lightfoot tells us that the Highlanders entertain a superstitious notion that our Saviour's cross was made of this tree, for which reason they suppose that its leaves can never rest.

4. P. *nígra* L. (*black Poplar*); leaves deltoid acute serrated glabrous on both sides, fertile catkins cylindrical lax, "stigmas 4." *E. Bot.* t. 1910; *Ed. Cat.* p. 10.

Watery places and river-banks. Scarcely indigenous to Scotland. *Fl.* Apr. ♄. — A very large *tree* of quick growth, producing a light, not valuable *wood*; as is the case with most trees that come soon to perfection.

5. FÁGUS *Linn.* Beech.

Monœcious.—*Barren fl.* in a globose *catkin*. *Perianth* single, of 1 leaf, campanulate, 6-cleft. *Stam.* 5—12. — *Fertile fl.* 2, within a 4-lobed, prickly *involucre*. *Perianth* single, urceolate, with 4—5 minute lobes. *Germen* incorporated with the perianth, 3-celled, 2 becoming abortive. *Styles* 3. *Nuts* 1-seeded, invested with the enlarged involucre. — Name: φαγος, in Greek, from φαγω, to *eat*, on account of the nutritive qualities of the fruit.

1. F. *sylvática* L. (*common Beech*); leaves ovate glabrous obsoletely dentate their margins ciliated. *E. Bot.* t. 1846; *Ed. Cat.* p. 5.

Woods, especially on a chalky soil. Scarcely wild in Scotland; but abundant in forests in the south of England. *Fl.* Apr. May. ♄. — The tree bears clipping, and then, as Mr. Stewart Murray observed to me, its *leaves* are retained during winter. The *wood* is employed for an infinity of purposes, by carpenters, turners, wheelwrights, &c. Swine are driven into the forests of *Beech* to feed upon the *mast* in Autumn.

6. CASTÁNEA *Tourn.* Chestnut.

Monœcious. — *Barren fl.* in a very long cylindrical *catkin*. *Perianth* single, of 1 leaf, 6-cleft. *Stam.* 5—20. — *Fertile fl.* 3, within a 4-lobed, thickly muricated *involucre*. *Perianth* single, urceolate, 5—6-lobed, having the rudiments of 12 *stam.* *Germen* incorporated with the *perianth*, 6-celled, each cell 2-seeded, 5 of the cells mostly abortive. *Styles* 6. *Nut* 1—2-seeded, invested

with the enlarged *involucre.* — Named from *Castanea*, in Thessaly, which produced magnificent *Chestnut* trees.

1. C. * *vulgáris* Lam. (*Spanish Chestnut*); leaves oblongo-lanceolate acuminate mucronato-serrate glabrous on each side. Fagus Castanea *Linn.* *E. Bot.* t. 886; *Ed. Cat.* p. 3.

Woods, apparently wild, in the S. and S.W. of England. *Fl.* May. ♄. — This noble tree is much cultivated in plantations on account of its timber, of which Evelyn says, "it hath formerly built a good part of our ancient houses in the city of London," and that he had "one large barn near the city entirely framed of it." It affords excellent stakes for palisades and props for vines and hops. It is good for mill timber and for water-works; but if water touch the root of the growing tree, it spoils both the fruit and wood. The nuts are used as an article of daily food in the S. of Europe, and in parts of France I have had them served up for breakfast, boiled in milk.

7. Quércus *Linn.* Oak.

Monœcious. — *Barren fl.* in a lax *catkin* or *spike.* *Perianth* single, 5—7-cleft. *Stam.* 5—10. — *Fertile fl.* *Involucre* of many little scales, united into a *cup.* *Perianth* single, closely investing the germen, 6-toothed. *Germen* 3-celled. *Style* 1. *Stigmas* 3. *Nut* (or *acorn*) 1-celled, 1-seeded, covered by the persistent, enlarged perianth, and surrounded at the base by the enlarged cup-shaped involucre. — Named from the Celtic *quer, beautiful,* and *cuez,* a *tree.* It produced the Misseltoe of the *Druids,* and was thence called also *derw;* hence *Darach,* Gaelic; δρυς, in Greek, and *Dryades.*

1. Q. *Róbur* L. (*common British Oak*); leaves deciduous shortly stalked oblong-obovate deeply sinuate their sinuses rather acute lobes obtuse, fruits 2—3 upon a long peduncle. *E. Bot.* t. 1342; *Ed. Cat.* p. 11. Q. pedunculata *Willd.*

Woods and hedges. *Fl.* April, May. ♄. — The uses of this most important tree are universally known. Its *acorns* were formerly the food of our British ancestors, but are now left to hogs and squirrels or the larger gallinaceous birds. The word *Robur* is derived from *rove,* another Celtic word for the *oak:* whence arises *robur, strength,* in Latin.

2. Q. *sessiliflóra* Salisb. (*sessile-fruited Oak*); leaves deciduous on long stalks oblongo-obovate deeply sinuate their sinuses rather acute lobes obtuse, fruits clustered upon a very short stalk or sessile. *E. Bot.* t. 1845; *Ed. Cat.* p. 11. Q. Robur *Willd.*

Woods and hedges, not uncommon. *Fl.* April, May. ♄. — The specific name is calculated to mislead. The *flowers* are sessile upon the peduncle in both species. But here, the peduncle is very short, or almost wanting; in *Q. Robur* it is much elongated. The *wood* of the present species is said to be much inferior to the last; and a general opinion having prevailed that it has been more extensively planted, especially in Scotland, no little alarm was in consequence excited, lest our forests should be thereby deteriorated. An eminent modern

author has, however, lately expressed his opinion that it is the *Q. sessiliflora*, which yields the best timber for shipping. This subject deserves the serious consideration of the planter. [1]

8. Córylus *Linn.* Hasel-nut.

Monœcious.—*Barren fl.* in a cylindrical *catkin;* its scales 3-cleft. *Perianth* 0. *Stam.* 8. *Anthers* 1-celled. — *Fertile fl. Perianth* obsolete. *Germens* several, surrounded by a scaly *involucre. Stigmas* 2. *Nut* 1-seeded, invested at the base with the enlarged, united, coriaceous scales of the involucre. — Named from κορυς, a *casque* or *cap;* the fruit, with its involucre, appearing as if covered with a bonnet.

1. C. *Avellána* L. (*common Hasel-nut*); stipules oblong obtuse, leaves roundish cordate pointed, involucre of the fruit campanulate rather spreading torn at the margin. *E. Bot.* t. 723; *Ed. Cat.* p. 4.

Hedges and copses, abundant. *Fl.* March, April. ♄. — The wood of hasel is employed for a number of domestic and agricultural purposes, and makes an excellent charcoal for drawing. The nuts are well-known at our tables. The young forked twigs of this plant constitute the celebrated divining-rod (*virgula divinatoria*): for an account of which see No. XLIV. of the *Quarterly Review.* From the Anglo-Saxons we have derived our word *Hasel-nut*, which they called *Haselnutu*, from *Hasel*, a *cap*, and *Knutu*, a *nut.*

9. Cárpinus *Linn.* Hornbeam.

Monœcious.—*Barren fl.* in a cylindrical *catkin;* its scales roundish, ciliated at the base. *Stam.* 8—20. — *Fertile fl.* in a lax *catkin;* its scales large, foliaceous, 3-lobed, 1-flowered. *Involucre* 0. *Perianth* of 1 leaf, urceolate, 6-dentate, incorporated with the 2-celled *germen*, of which one cell is abortive. *Styles* 2. *Nut* ovate, striated, 1-seeded. — Named from *car*, *wood*, and *pin*, a *head*, in Celtic; it having been the wood employed to make the yokes of oxen.

1. C. *Bétulus* L. (*Hornbeam*); scales or bracteas of the fruit oblong serrated with 2 smaller lateral lobes. *E. Bot.* t. 2032; *Ed. Cat.* p. 3.

In woods and hedges, in a meagre, damp, tenacious soil, forming a principal part of the ancient forests on the north and east sides of London. *Fl.* May. ♄. — Rather a small *tree*, with ovate or subcordate, doubly-serrated, acute *leaves*, of which the veins are somewhat hairy,

[1] For more valuable remarks on this subject, see the "*Botany of the County of Sussex, by Mr. T. H. Cooper.*" 1834. See also *Lindl. Syn. of Brit. Pl.*, where it is affirmed that *Q. sessiliflora* is as superior in the quality of its timber to *Q. Robur* as it is in beauty and vigour of growth. There is a *Q. intermedia* Don, given by Leighton in his *Shropshire Flora*, which would seem to unite the two generally received British species: and Dr. Greville (*Ed. Bot. Trans.* v. 1. p. 69.) says, that the characters by which the three are at present distinguished pass insensibly and completely into each other.

and which are beautifully plaited when young. The *wood* of the Hornbeam is white, tough, and hard, and burns like a candle. It is used in turnery work, for implements of husbandry, cogs of wheels, &c. The inner *bark* yields a yellow dye.

Ord. LXXIX. MYRICEÆ.

Monœcious or dicœcious, amentaceous. *Perianth* 0. — *Barren fl. Stamens* 6 or 8. *Anthers* 2- or 4-celled, opening lengthwise. — *Female fl. Ovary* 1-celled, surrounded by hypogynous persistent scales. *Stigmas* 2. *Fruit* drupaceous, often covered with waxy secretion, or dry. *Seed* solitary, erect. *Embryo* without *albumen*. — Shrubs, *often aromatic, with resinous glands, and alternate leaves.* In *Myrica cerifera* a copious wax exudes from the berries, employed for economical purposes.

1. Myrica *Linn.* Gale.

Barren fl. Scales of the *catkin* concave. *Perianth* 0. — *Fertile fl. Scales* of the *catkin* concave. *Perianth* 0. *Styles* 2. *Drupe* 1-celled, 1-seeded. — Name: μυρικη, in Greek, synonymous with the *Tamarix*.

1. M. *Gále* L. (*sweet Gale* or *Dutch Myrtle*); leaves lanceolate broader upwards serrated, stem shrubby. *E. Bot.* t. 562; *Ed. Cat.* p. 9.

Bogs and moory ground, most abundant, especially in Scotland. *Fl.* May. ♄. — The plant diffuses an agreeable smell,

"*Gale* from the bog shall waft Arabian balm,"

and the *leaves* have a bitter taste, hence they are sometimes employed instead of hops. In Isla and Jura the inhabitants scent their clothes with them, and, in many parts of Scotland, beds are made of the twigs.

Ord. LXXX. CONIFERÆ.

(Including Taxineæ *Rich.*)

Monœcious or dicœcious. *Barren flowers* monandrous or monadelphous; each floret consisting of a single *stamen*, or of a few united, collected, in a deciduous catkin, about a common rachis. *Anthers* 2-lobed or many-lobed, bursting outwardly; often terminated by a crest, which is an unconverted portion of the scale out of which each stamen is formed: *pollen* large, usually compound. — *Fertile flowers* generally in cones, sometimes solitary. *Ovary* in the cones spread open, and having the appearance of a flat scale destitute of style or stigma, and arising from the axil of a membranous bractea; in the solitary flower apparently wanting. *Ovules* naked; in the cones in pairs on the face of the ovary, having an inverted position, and consisting of 1 or 2 membranes open at the apex, and of a nucleus, in the solitary flower erect. *Fruit* consisting either of a solitary

naked *seed;* or of a *cone;* the latter, formed of the scale-shaped ovaries which become enlarged and indurated, and occasionally, of the bracteas also, which are sometimes obliterated, and sometimes extend beyond the scales in the form of a lobed appendage. *Seeds* with a hard crustaceous integument. *Embryo* in the midst of a fleshy and oily *albumen,* with 2 or many opposite *cotyledons;* the *radicle* next the apex of the seed, and having an organic connection with the albumen.[1] — *Resinous* trees *or* shrubs, *of vast importance, inhabitants of various parts of the world.* Leaves *linear, acerose or lanceolate, rigid, entire at the margins, or dilated and lobed, always with parallel veins, sometimes fascicled and sheathing at the base.* — From the *pine* (*pinus*), *spruce* (*abies*), and *larch* (*larix*), we derive an immense quantity of useful *timber, turpentine, pitch,* &c. *Larix communis* yields *Venetian turpentine: L. Cedrus* is the *Cedar of Lebanon. Gum Sandarach* is supposed to be the product of *Thuja articulata.* The berries of our common *Juniper* impart the peculiar flavour to gin. Cedar pencils are not made of the real Cedar of Lebanon wood, but of an American *Juniper, Juniperus Virginiana.* There are three natural groupes or sub-orders. I. ABIETINEÆ: 1. PINUS. II. CUPRESSINEÆ: 2. JUNIPERUS. III. TAXINEÆ: 3. TAXUS.

1. PÍNUS *Linn.* Fir.

Barren fl. in crowded, racemose *catkins;* the scales peltate, bearing 2, 1-celled, sessile *anthers. Perianth* 0. — *Fertile fl.* in an ovate *catkin;* its scales closely imbricated, 2-flowered. *Perianth* 0. *Pericarp* 1-seeded, terminated by a long winged appendage, and covered with the imbricated scales, forming a *cone* (*strobilus*). — Name: *pin,* or *pen,* means a *crag* or stony mountain, still so called in Wales (as *Ben* in Scotland); where the *pine* delights to grow, "moored in the rifted rock."

1. P. *sylvéstris* L. (*Scotch Fir*); leaves in pairs rigid, cones conic-ovate acute young ones stalked recurved as long as the leaves generally in pairs, crest of the anthers very small. *E. Bot.* t. 2460; *Ed. Cat.* p. 10.

Highlands of Scotland, where it constitutes vast natural forests. *Fl.* May, June. ♄. — A *tree* of great value, but little beauty, except,

[1] I have adopted entirely Dr. Lindley's character of this remarkable Order, whose structure has only recently been fully explained by Brown and Richard, and which, with the *Cycadeæ,* forms one of the two groups into which Dr. Lindley divides all "Vascular or Flowering Plants," — viz. the *Angiospermia* and the *Gymnospermia.* To the latter the 2 families in question belong; they alone possessing really naked ovules. The wood too of the *Gymnospermia* is described as having cells with large apparent perforations, to which nothing similar has been seen elsewhere. In the 2d ed. of Professor Lindley's *Natural System of Botany,* that author, following Richard, has formed a separate Order of *Taxus* and its allies, "*Taxineæ.*"

indeed, when it grows in large masses, as in some of the Highland forests. It yields the red or yellow deal. A plank from the largest tree that was cut down in the Duke of Gordon's forests at Glenmore was shown to me by the late Duke at Gordon Castle; it measured 5½ feet in diameter. The *bark* has been used with much success in tanning, and in the north of Europe is made into a wretched substitute for bread. Tar, pitch, and turpentine are the produce of this tree; and in the Highlands, the resinous roots, dug up in the bogs, afford a succedaneum for candles.

2. Juníperus *Linn.* Juniper.

Barren fl. Scales of the *catkin* subpeltate. *Perianth* 0. *Stam.* 4—8, 1-celled. — *Fertile fl. Scales* of the *catkin* few, united, at length fleshy, and surrounding the 3-seeded *berry.* — Name: *jeneprus*, in Celtic, *rude, rough*, as is the plant itself.

1. J. *commúnis* L. (*common Juniper*); leaves 3 in a whorl linear mucronate spreading or imbricated longer than the berry. *E. Bot.* t. 1100; *Ed. Cat.* p. 7. — β. *nana*; small, procumbent, leaves broader. J. nana *Willd.: E. Bot. Suppl.* t. 2743; *Ed. Cat.* p. 7.

Woods and heaths, frequent. — β. abundant in the mountains of Wales, Scotland, and Ireland, and on low ground in the northern parts. *Fl.* May. ♄. — A *shrub*, extremely variable in size, bearing numerous, linear, mucronate and pungent *leaves*. *Flowers* axillary, small. The *berries*, which are bluish-black, form an important article of commerce in Holland, where they are employed in the manufacture of Geneva, and impart to it that peculiar flavour which our distillers try to imitate by oil of turpentine. The wood is reddish, and serves for veneering.

3. Táxus *Linn.* Yew.

Barren fl. Catkins oval, scaly at the base. *Stam.* numerous. *Anthers* peltate, 6—8-celled; *cells* opening beneath. — *Fertile fl.* solitary, scaly at the base. *Style* 0. *Drupe* fleshy, perforated at the extremity. — Name: τοξον, an *arrow*; it is said because arrows were poisoned with its juice.

1. T. *baccáta* L. (*common Yew*); leaves 2-ranked crowded linear acute, flowers axillary sessile. *E. Bot.* t. 746; *Ed. Cat.* p. 14.

Mountain woods. *Fl.* March. ♄. — A low *tree*, but with a *trunk* often of considerable diameter. The noble *yew*, which still remains in Fortingal church-yard at the entrance to Glen Lyon, measures, according to Pennant, 56½ feet in circumference. The *wood* is hard, beautifully veined, much valued for cabinet-makers' work, and was formerly still more highly prized for making bows, and on that account is said to have been planted extensively by our ancestors in church-yards. *Leaves* distichous, linear, persistent, deep green. *Drupes* red, esteemed poisonous. The *Irish*, or *Florence-court Yew*, now generally known in our gardens, has scattered *leaves*, and, as Mr. J. T. Mackay observes, a different habit from the common kind, and is deserving of more accurate investigation. It is T. fastigiata of *Lindl. Syn.*, T. baccata β, *Ed. Cat.* p. 14; but, if a species, is not wild in Britain.

CLASS II.

MONOCOTYLEDONOUS[1], OR ENDOGENOUS PLANTS.

Cellular and vascular. *Stem* with no distinction of bark, wood, and pith, and no medullary rays; increasing in the centre (thence endogenous), so that the oldest formation is external. *Leaves* mostly alternate, often sheathing, generally with parallel nerves. *Flowers* usually with a single perianth, the parts mostly arranged in a ternary manner. *Embryo* with one *cotyledon*. *Plumule* within the cotyledon; *radicle* also included.

Sub-Class I. PETALOIDEÆ. (Ord. LXXXI—XCVII.)

Perianth more or less coloured, the pieces of which it is composed generally with a ternary arrangement, or wanting and naked (*as in* Aroideæ, Pistiaceæ *and* Naiades.)[2]

DIV. I. *Ovary free, not adnate with the perianth.* (ORD. LXXXI—XCII.)

ORD. LXXXI. ALISMACEÆ.

Perianth of 6 pieces, the 3 inner petaloid. *Stamens* hypogynous. *Ovaries* several, 1-celled. *Pericarps* indehiscent. *Seeds* solitary, or 2 attached to the suture at a distance from each other, erect or ascending. *Albumen* 0. *Embryo* curved like a horseshoe, with the same direction as the seed. — Aquatics. Leaves *radical on long stalks.*

1. ALÍSMA *Linn.* Water-Plantain.

Cal. of 3 leaves. *Petals* 3. *Capsules* many, clustered, distinct, indehiscent, one-seeded. *Embryo* much curved.— Named from *alis, water,* in Celtic. The genus is altogether aquatic.

1. A. *Plantágo* L. (*greater Water-Plantain*); leaves ovate acute, fruit depressed, capsules obtusely trigonal. *E. Bot.* t. 837; *Ed. Cat.* p. 1. — *β. lanceolat.* Sm.: *Ed. Cat.* p. 1.

Near the margins of lakes, rivers and ditches, frequent. *Fl.* July. ♃. — 2—3 feet high. *Leaves* all radical, on long stalks. *Scape* branched upwards; *branches* all whorled, bracteated, compound; *flowers* of a pale rose-colour. *Embryo* curved, as in *Actinocarpus.*

2. A. *nátans* L. (*floating Water-Plantain*); leaves elliptical obtuse, stem floating and rooting, peduncles simple. *E. Bot.* t. 775; *Ed. Cat.* p. 1.

Lakes in North Wales and Cumberland: very rare in Scotland.

[1] From *μονος, one* or *single,* and *κοτυληδων,* a *cotyledon.*

[2] Thus excluding the Grasses and Cyperaceous Families, where the Stamens and Pistil are immediately covered by alternate imbricated *membranaceous* scales or bracteas, hence glumaceous.

Black Loch, 6 miles from Stranraer. On Howth and in Cunnamara, Ireland. *Fl.* July, Aug. ♃. — At the base of the plant are long, linear-lanceolate, membranous *scales*, or abortive *root-leaves*. *Stem-leaves* floating, on long stalks, scarcely nerved.

3. A. *ranunculoides* L. (*lesser Water-Plantain*); leaves all radical linear-lanceolate, scape umbellate, fruit globose squarrose, capsules acute. *E. Bot.* t. 326; *Ed. Cat.* p. 1. — β. with creeping runners. A. repens "*Davies Welsh Bot.* 36"; *E. Bot. Suppl.* t. 2722; *Ed. Cat.* p. 1.

Ditches and turfy bogs, not unfrequent in England, Scotland, and Ireland. — β. In lakes, North Wales. *Fl.* Aug., Sept. ♃. — In general appearance most allied to *A. Plantago*, especially the narrow-leaved Scottish variety of that plant. But it is much smaller, having larger *flowers*, which are pale-coloured, and arranged in often proliferous *umbels*. The most essential character is to be found in the *germen* and *fruit*.

2. Actinocárpus *Br.* Star-fruit.

Cal. of 3 leaves. *Petals* 3. *Germens* 6—8. *Capsules* combined at the base, spreading in a radiated manner, 2-seeded. *Embryo* much curved. — Named from ακτιν, a *ray*, and καρπος, a *fruit*; in consequence of its curiously radiated fruit resembling a *star-fish*.

1. A. *Damasónium* Br. (*common Star-fruit*); capsules 6 subulate compressed opening longitudinally, leaves 5-nerved. *Hook. in Fl. Lond. N. S. cum ic.*; *Ed. Cat.* p. 1. Alisma Damasonium *L.*; *E. Bot.* t. 1615.

Ditches and pools, mostly in a gravelly soil, and chiefly in the middle and south-eastern counties of England. *Fl.* June, July. ♃. — *Leaves* radical, on long *petioles*, floating, elliptical. *Scapes* with a terminal *umbel*, generally proliferous. *Petals* white, very delicate, obcordate, each having a yellow spot at the base. *Capsules* with two *seeds* upon evident stalks, one from the upper angle, horizontal, the other from the lower angle of the axis, erect, oblong, tubercled, and transversely striated, compressed, with a deep furrow on each side, occasioned by the form of the *embryo* within, which is cylindrical, and bent double, somewhat like a horse-shoe.

3. Sagittária *Linn.* Arrow-head.

Barren fl. Cal. 3-leaved. *Pet.* 3. *Stam.* numerous. — *Fertile fl. Cal.* 3-leaved. *Pet.* 3. *Pistils* very numerous, collected into a *head*. *Pericarps* 1-seeded, compressed, margined. — Named from *sagitta*, an *arrow*, on account of the shape of its leaves.

1. S. *sagittifólia* L. (*common Arrow-head*); leaves arrow-shaped, the lobes lanceolate straight. *E. Bot.* t. 84; *Ed. Cat.* p. 11.

Ditches and margins of rivers in England and Ireland. *Fl.* July, Aug. ♃. — A beautiful aquatic, with large, truly arrow-shaped *leaves*, rising above the surface of the water.

Ord. LXXXII. BUTOMEÆ.

Perianth of 6 pieces, the 3 inner petaloid. *Stamens* definite or indefinite, hypogynous. *Ovaries* 3 or 6, or more, distinct or united. *Stigmas* as many, simple. *Follicles* several, either distinct and rostrate, or united into one. *Seeds* minute, numerous, attached to a reticulated receptacle, lining the inner surface of the cell. *Albumen* 0. — Aquatics. Leaves *very cellular.* Flowers *umbellate, handsome.*

1. Bútomus *Linn.* Flowering-rush.

Perianth single, coloured, 6-partite, inferior. *Capsules* 6, many-seeded. *Seeds* fixed to the inner lining of the capsule.— Named from βους, *an ox,* and τεμνω, *to cut;* because the sharp leaves injure the mouths of cattle that browse upon them.

1. B. *umbellátus* L. (*common Flowering-rush*); leaves linear-subulate trigonous, spatha of 3 leaves. *E. Bot.* t. 651; *Ed. Cat.* p. 2.

Ditches and ponds, frequent in England and Ireland. Duddingston Loch, and Loch of Clunie, Scotland, where I believe it has been planted. *Fl.* June, July. ♃. — *Root* white, tuberous. *Leaves* all radical, 2—3 feet long, linear, acuminate, acutely trigonous, more or less spirally twisted at the extremity. *Scape* longer than the *leaves,* rounded. *Umbel* of many rose-coloured *flowers,* on *pedicels* about 4 inches long, with scariose sheathing *bracteas* at the base; and these having a triphyllous membranous *spatha* or involucre beneath them. *Germens* ovate, compressed. *Style* about as long as the germen, with a recurved, cleft *stigma. Seeds* parietal, or fixed to the inner surface of the pericarp, extremely small. A highly ornamental plant.

Ord. LXXXIII. JUNCAGINEÆ.

Perianth uniform, rarely none, not petaloid. *Stamens* hypogynous. *Ovaries* superior. *Ovules* solitary or two, approximated at the base; erect. *Pericarps* indehiscent. *Embryo* without *albumen,* having the same direction as the seed, with a lateral cleft for the emission of the *plumule.* — Marsh Herbs, *with narrow radical leaves.* Flowers *spiked or racemed.*

1. Triglóchin *Linn.* Arrow-grass.

Perianth of 6, concave, deciduous leaves, 3 outer, and 3 inner. *Anthers* sessile, lodged in the leaves of the *perianth,* with their backs towards the *pistil. Capsules* 3—6, 1-seeded, united by a longitudinal *receptacle,* from which they usually separate at the base.— Named from τρεις, *three,* and γλωχις, a *point;* from the three points of the capsules.

1. T. *palústre* L. (*Marsh Arrow-grass*); fruit 3-celled nearly linear. *E. Bot.* t. 366; *Ed. Cat.* p. 14.

Wet meadows, and by the sides of rivers and ditches in marshy situations, plentiful. *Fl.* Aug. ♃. — *Leaves* all radical, linear, fleshy,

slightly grooved on the upper side, sheathing and membranous at the base. *Scape* 8—10 inches high, terminating in a lax, simple *spike* or *raceme*. *Flowers* small, greenish. *Capsules* 3, linear, united by a common receptacle, so as to form one 3-celled *fruit*, each cell separating at its base, and suspended by the extremity, containing one *seed*, and not dehiscent. — Mr. W. Wilson finds that the leaves, when bruised, yield a very fetid smell, and that the root, under certain circumstances at least, is a creeping one: sending out jointed scaly runners, with comparatively large, ovate, shortly acuminated *bulbs* at the extremity. These bulbs at the end of the jointed runners have very much the appearance of a scorpion's tail.

2. T. *marítimum* L. (*Sea-side Arrow-grass*); fruit 6-celled ovate. *E. Bot.* t. 225; *Ed. Cat.* p. 14.

Salt marshes, not unfrequent. *Fl.* May, Aug. ♃. — Larger than the last, and stouter, differing essentially in its fructification, which is formed of 6 combined *capsules*, constituting a broadly ovate *fruit*; not separating from the base and suspended by their summits, as in *T. palustre*. Even when in flower, the same form is observable in the germen as in the fruit.

2. Scheuchzéria *Linn.* Scheuchzeria.

Perianth single, petaloid, of 6 leaves. *Anthers* elongated. *Capsules* 3, inflated, 2-valved, 1—2-seeded. — Named in honour of the 3 *Scheuchzers*, Swiss botanists.

1. S. *palústris* L. (*Marsh Scheuchzeria*). *E. Bot.* t. 1801; *Ed. Cat.* p. 12.

In a marsh at Lakeby Car, near Boroughbridge, discovered by the *Rev. James Dalton*. Thorne Moor, near Doncaster. Bomerepool, near Shrewsbury: *C. Babington, Esq.* Methven, near Perth: *Mr. Duff*, 1833. *Fl.* July. ♃. — A singular and very rare plant, having few, semi-cylindrical, slender, rush-like *leaves*; and a *scape* with large *bracteas*, terminated by a *raceme* of greenish *flowers*. *Perianth* and *stamens* reflexed. *Germens* 3, ovate, obtuse, with lateral, linear, downy *stigmas*. *Capsules* singularly inflated.

Ord. LXXXIV. AROIDEÆ (*Br.*)

Flowers spathaceous, on a spadix; sometimes with the anthers and pistils separated, and then generally naked; sometimes perfect, with a 4—6, rarely 3-partite perianth, the latter not petaloid. *Stamens* very numerous in those with naked flowers: in the genera having a perianth usually opposite, and equal in number to the segments of the latter. *Anthers* turned outwards. *Ovaries* free, solitary or numerous, 1—3-celled, 1—many-seeded. *Ovules* erect, sometimes pendulous or parietal. *Style* (usually) none. *Stigma* 1. *Pericarp* indehiscent, baccate or capsular. *Embryo* in the axis of a fleshy *albumen*, with the same direction as the seed, rarely with a contrary direction, having a cleft on its side for the emission of the *plumule*. — By many this Order is divided into 3 Tribes or Sub-Orders; — Tribe I. Arineæ.

Perianth 0. *Fruit a berry. Spadix spathaceous. Root frequently tuberous. Leaves sheathing at the base, convolute in æstivation, simple or compound, often cordate and with branching veins.* Acrid and poisonous; but if the juice is dissipated by heat, or extracted by pressure, the leaves and roots become esculent; and the fecula of the latter capable of being converted into excellent bread. Thus the *Caladium esculentum*, and its allied species, are abundantly eaten in warm countries. 1. ARUM. Tribe II. ACORACEÆ. *Flowers perfect, surrounded by a perianth. Spatha leaflike. Stamens* 6. *Fruit a berry. Herbaceous Marsh plants. Leaves ensiform, equitant.* 2. ACORUS. Tribe III. TYPHINEÆ. *Flowers monœcious, surrounded by a perianth. Stam.* 3. *Fruit an achenium. Herbaceous Marsh plants. Leaves ensiform with parallel veins. Spadix without a spatha.* 3. TYPHA. 4. SPARGANIUM.

1. A'RUM *Linn.* Cuckow-pint.

Spatha of one leaf, convolute at the base. *Perianth* 0. *Spadix* with germens at the base. *Stam.* (sessile) near the middle of the *spadix*, which is naked above. *Berry* with 1 *cell* and many *seeds.* — Name, formerly written *Aron*, and supposed to be an ancient Egyptian word by which one of this tribe was known.

1. A. *maculátum* L. (*Cuckow-pint* or *Wake-robin*); leaves all radical hastato-sagittate, lobes deflexed, spadix club-shaped obtuse shorter than the spatha. *E. Bot.* t. 1298; *Ed. Cat.* p. 2.

Groves and hedges, frequent in England; rare in Scotland and Ireland. *Fl.* April, May. ♃. — *Root* a *tuber*, affording an abundant amylaceous substance; which, if properly prepared and the acrid juice expressed, proves an excellent substitute for bread-flour, and is sold for that purpose in great quantities at Weymouth and in Portland Island. *Leaves* large, shining, often spotted with black. *Spatha* large, convolute. Above the *germens*, on the *spadix*, is a ring or circle of 2-celled, sessile *anthers*, and above these, another ring of apparently imperfect *germens*. The extremity of the *spadix* is purplish. *Berries* remaining during winter, after the leaves and spadix have decayed, crowded into an oblong spike of a bright scarlet colour.

2. A'CORUS *Linn.* Sweet Sedge.

Flowers arranged upon a *spadix*. *Spatha* 0. *Perianth* of 6 pieces or scales, inferior. *Stigma* sessile. *Capsule* indehiscent, many-seeded. — Named from *a*, *out*, and κοριον, or κορη, the *pupil of the eye*, the diseases of which it was supposed to remove.

1. A. *Cálamus* L. (*common Sweet Sedge*); scape ancipitate rising much above the spadix. *E. Bot.* t. 356; *Ed. Cat.* p. 1.

Watery places on the banks of rivers, in the middle and south-eastern counties of England; abundant in Norfolk and Suffolk. Rare in Scotland. Ayrshire. Loch Winnoch, Renfrewshire. Castle Semple

Loch. *Fl.* June. ♃. — *Root* aromatic. *Scape* similar to the *leaves*, ensiform-ancipitate. The agreeable scent of this plant has recommended it for garlands, and for strewing on the floor of the cathedral at Norwich on festival-days.

3. Týpha *Linn.* Cat's-tail or Reed-mace.

Flowers collected into very dense, cylindrical *spikes* or *catkins*. — *Barren fl. Perianth* 0. *Stam.* 3 together upon a chaffy or hairy receptacle, united below into 1 filament. — *Fert. fl. Perianth* 0. *Pericarp* pedicellate, surrounded at the base with hairs resembling a *pappus*. — Named from τυφος, a *marsh*, where the plant grows.

1. T. *latifólia* L. (*great Reed-mace*); leaves linear nearly plane, sterile and fertile catkins continuous. *E. Bot.* t. 1455; *Ed. Cat.* p. 14.

Borders of ponds and lakes. *Fl.* July, Aug. ♃. — *Stems* 3—6 feet high. *Leaves* very long, sometimes nearly an inch broad. *Catkins* very long, close together; *fertile one* greenish-brown; *sterile one* yellow, with one or two large membranaceous *bracteas*.

2. T. *angustifólia* L. (*lesser Reed-mace*); leaves linear grooved below, sterile and fertile catkins a little distant from each other. *E. Bot.* t. 1456; *Ed. Cat.* p. 14.

Pools and ditches, less frequent than the preceding. About London; not uncommon in the E. of England, as Norfolk, Suffolk, and Essex. Loch of Lindore, Fife. *Fl.* July. ♃. — Smaller than the last, with much narrower *leaves* and *catkins*. *Sterile fl.*, according to *Sm.* (which in *T. latifolia* have hairs on the receptacle), mixed with chaffy *scales*.

3. T. **minor* Sm. (*dwarf Reed-mace*); leaves linear setaceous, barren and fertile catkins distant the latter elliptical. *E. Bot.* t. 1457; *Ed. Cat.* p. 14. T. minima *Willd.* T. angustifolia β. *Linn.*

Said, by Dillenius, to have been found by *Mr. Dandridge* on Hounslow Heath. *Fl.* July. ♃.

4. Spargánium *Linn.* Bur-reed.

Flowers in sphærical, dense heads. — *Barren fl. Perianth* single, of 3 leaves. — *Fertile fl. Perianth* single, of 3 leaves. *Drupe* dry, with 1 seed. — Name σπαργανον, a *little band*, from its narrow and long leaves.

1. S. *ramósum* Huds. (*branched Bur-reed*); leaves triangular at the base their sides concave, common flowerstalk branched, stigma linear. *E. Bot.* t. 744; *Ed. Cat.* p. 13. S. erectum *L.*

Banks of ditches, lakes and stagnant waters. *Fl.* July. ♃. — *Stem* 2 feet and more high, with a few, long, sword-shaped *leaves* or *bracteas*, having broad membranous sheathing bases on the upper or branching part. *Root-leaves* very long, linear, ensiform, triangular at the base, their sides concave. *Sterile flowers* in sphærical *heads*, distantly placed; *fertile ones* below.

2. S. *símplex* Huds. (*unbranched upright Bur-reed*); leaves triangular at the base their sides flat, common flowerstalk simple, stigma linear. *E. Bot.* t. 745; *Ed. Cat.* p. 13. S. erectum *β. L.*

Ditches and stagnant waters, especially in a gravelly soil. *Fl.* July. ♃. — Much smaller than the last. *Stem* rarely, if at all, branched, though the lower *heads* of *flowers* are stalked. The sides of the *leaves* are plane, not concave or grooved; the *flowers* pale yellow.

3. S. *nátans* L. (*floating Bur-reed*); leaves floating plane, common flowerstalk simple, stigma ovate very short, head of sterile flowers mostly solitary. *E. Bot.* t. 273; *Ed. Cat.* p. 13.

Lakes, ditches, and stagnant waters; abundant in the north. *Fl.* July. ♃. — *Leaves* very long, linear, pellucid.

Ord. LXXXV. PISTIACEÆ.

Perianth 0. *Flowers* 2, enclosed in a *spatha*. — *Sterile fl. Stamens* definite. — *Fertile fl. Ovary* 1-celled, with 1 or more erect *ovules*. *Style* short. *Stigma* simple. *Fruit* membranaceous or capsular, indehiscent, 1- or more-seeded. *Seeds* with a fungous *testa*, and a thickened indurated *foramen*. *Embryo* either in the axis of a fleshy *albumen* and having a lateral cleft for the emission of the *plumule*, or at the apex of the *nucleus*. — Floating *frondose plants; minute and lenticular, or with large lobed fronds.*

1. Lémna *Linn.* Duckweed.

Perianth single, monophyllous, membranaceous, urceolate. *Fruit* utricular.—Fronds *without distinct stem or leaves, floating on the surface of the water, and increasing, not only by seeds, but, far more abundantly, by* gemmæ *or* buds, *concealed in lateral clefts of the parent frond, which, growing out on 2 opposite sides into new plants, and these again producing offspring in the same way, while still attached to their parent, present a most curious appearance.* — Name: λεμνα, of the Greeks, it is said from λεπις, *a scale.*

1. L. *trisúlca* L. (*Ivy-leaved Duckweed*); fronds thin elliptic-lanceolate caudate at one extremity, at the other serrated, roots solitary. *E. Bot.* t. 926; *Ed. Cat.* p. 7.

Clear stagnant waters. Less frequent in Scotland than in England. *Fl.* June, July. ☉. — *Fronds* ½—¾ of an inch in length, pellucid at the margins, reticulated. *Roots* solitary, tipped at the extremity (as are those of the rare and beautiful aquatic, *Pontederia azurea*) with a small *sheath.*

2. L. *mínor* L. (*lesser Duckweed*); fronds nearly ovate compressed, roots solitary. *E. Bot.* t. 1095; *Ed. Cat.* p. 7.

Stagnant waters, common. *Fl.* July. ☉. — About a line or a line and a half long; of a rather thick and succulent, but compact texture, slightly convex beneath. This is the most abundant of all the species,

covering the surface of ditches and harbouring numerous insects and molluscæ, the food of ducks and other waterfowl, whence the English name of *Duckweed*. The young fronds constitute the *Lemna arhiza* of the French authors. The *capsule* is single-seeded ; *seed* transverse, with its *hilum* " directed towards the narrow end of the frond :" *Wilson*.

3. L. *polyrhíza* L. (*greater Duckweed*) ; fronds obovato-rotundate compressed, roots numerous clustered. *E. Bot.* t. 2458 ; *Ed. Cat.* p. 7.

Stagnant waters. *Flowers* unknown in Britain. ☉. — The largest of all the species, half an inch long and nearly as broad, succulent, firm, faintly striated ; a little convex below, where, and at the margin above, it is of a deep purple colour. *Roots* numerous from a central point. The fructification of this species is a great desideratum.

4. L. *gíbba* L. (*gibbous Duckweed*) ; fronds obovate nearly plane above, hemispherical beneath. *E. Bot.* t. 1223 ; *Ed. Cat.* p. 7.

Stagnant water, but not very frequent. Rare in Scotland. *Fl.* June —Sept. ☉. — Size of *L. minor*, but readily distinguished by its gibbous or even hemispherical lower surface, which is, moreover, white, pellucid, and beautifully cellular, upper side plane, green, opaque. " *Capsule* 4-seeded. *Seeds* furrowed, not transversely placed, but with the *hilum* towards the top of the capsule : " *Wilson*.

Ord. LXXXVI. NAIADES.

Flowers perfect or monœcious. *Perianth* of 2 or 4 pieces, rarely wanting. *Stamens* definite, hypogynous. *Ovaries* 1 or more, superior. *Stigma* simple. *Ovule* solitary, pendulous. *Fruit* dry, indehiscent, 1-celled, 1-seeded. *Seed* pendulous. *Embryo* without *albumen*, having a contrary direction to the seed, with a lateral cleft for the emission of the *plumule*. — Aquatics, *with very cellular leaves and stems*. Flowers *inconspicuous, usually spiked*.

1. Potamogéton *Linn.* Pond-weed.

Flowers sessile, upon a *spike* or *spadix*, which issues from a sheathing *bractea* or *spatha*. *Perianth* single, of 4 scales. *Anthers* sessile, opposite the scales of the perianth. *Pistils* 4, which become 4 small *nuts*. *Embryo* curved. — Named from ποταμος, a *river*, and γειτων, a *neighbour*. All the species grow in the water, and often present as beautiful an appearance in clear streams and ponds, as the *Fuci* do in the ocean. They protect the spawn of fish, and harbour innumerable aquatic insects, their roots and seeds affording food to water-birds. Chamisso and Schlechtendal have well illustrated this genus. (*See Linnæa*, v. ii. p. 159.)

* *Leaves all opposite ; stipules none.*

1. P. *dénsus* L. (*opposite-leaved Pond-weed*) ; leaves all op-

posite amplexicaul ovato-acuminate or lanceolate. *E. Bot.* t. 397; *Ed. Cat.* p. 10.

Ditches, frequent. *Fl.* June, July. ♃. — *Peduncles* short. *Head* of *flowers* small, rounded. *Leaves* keeled below, middle nerve or rib of many longitudinal cells, with 2 and sometimes 3 lateral parallel veins on each side, the inner one the strongest.

** *Leaves alternate, all submersed, with adnate stipules.*

2. P. *pectinátus* L. (*Fennel-leaved Pond-weed*); leaves distichous setaceous or linear single-nerved sheathing by means of their adnate stipules, spike interrupted. *E. Bot.* t. 323; *Ed. Cat.* p. 10. P. marinus *L.*

Rivers, lakes, and salt-water ditches. *Fl.* July. ♃. — General habit not much unlike *Ruppia maritima.* Chamisso and Schlechtendal make 2 species of this: the one having small fruit or nuts, not keeled at the back (their *P. filiformis*): the other having large fruit, twice the size of the former, and keeled at the back (their *P. pectinatus*). I scarcely know whether these characters are sufficient to constitute species. If they are, our plants, at least all that I have seen in fructification, and there is no difference in the foliage, will belong to *P. filiformis.* The latter I possess from Gough, marked *P. marinus.* Probably it is the one alluded to by Dillenius as having "*large heads of flowers*" when growing in salt-water (*see E. Fl.* p. 237); and should be sought for by those who live in the neighbourhood of salt-marshes.

*** *Leaves alternate, all linear, submersed; stipules free.*

3. P. *pusíllus* L. (*small Pond-weed*); leaves narrow-linear 3—5-nerved with obscure connecting veins, peduncles elongated. *E. Bot.* t. 215; *Ed. Cat.* p. 10. — *β. major;* stem more compressed, leaves broader, spike somewhat interrupted. P. compressus *L.: E. Bot.* t. 418; *Ed. Cat.* p. 10.

Ditches and still waters. *Fl.* July. ♃. — The *stem* is here, as in all of this division, more or less compressed. The *leaves* are more or less acute; the spikes oblong, compact or a little interrupted. I quite agree with Chamisso and Schlechtendal, who unite the *P. compressus* with *P. pusillus.*

4. P. *gramíneus* L. (*grassy Pond-weed*); leaves broadly linear obtuse 3-nerved with few and obscure connecting veins, peduncle scarcely longer than the oblong oval spike. *E. Bot.* t. 2253; *Ed. Cat.* p. 10. P. obtusifolius *Mert. and Koch: Cham. et Schlecht. in Linnæa,* v. ii. p. 178. t. 4. f. 8.

Ponds and ditches; Deptford, Norwich, Yorkshire (*E. Fl.*), Lancashire. *Fl.* July. ♃. — Nearly allied to the last, but stouter, darker-coloured, and with short *peduncles,* scarcely longer than the stipule of the leaf from the axil of which they spring. The middle nerve or rib is accompanied by many parallel oblong reticulations, as is well observed by Smith.

5. P. *acutifólius* Link (*sharp-leaved Pond-weed*); leaves linear acuminate with 3 principal and numerous close parallel intermediate nerves occupying the whole surface, spikes oval

compact about equal in length with the short peduncle. *Hook. in E. Bot. Suppl.* t. 2609; *Ed. Cat.* p. 10.

Rare? Hitherto only found in marsh-ditches at Amberley, Henfield and Lewes, Sussex: *Mr. Borrer. Fl.* July. ♃. — The numerous, closely placed, parallel nerves well distinguish this and the following species from their congeners.

6. P. *zosterǽfólius* Schum. (*Grass-wrack-like Pond-weed*); leaves broadly linear acute with 3 principal and numerous close parallel intermediate nerves occupying the whole surface, spikes cylindrical upon long peduncles. *Reich. Iconogr.* t. 175. f. 308; *Cham. et Schlecht. in Linnæa*, v. ii. p. 182. t. 4. f. 10; *E. Bot. Suppl.* t. 2685; *Ed. Cat.* p. 10. P. cuspidatus *Schrad.: E. Fl.* v. i. p. 234.

Rare? Rivulet at Hovingham, Yorkshire. Lakes of Rescobie and Forfar. *Fl.* July. ♃. — Larger than the last; with *peduncles* 3—4 inches long, and *spikes* cylindrical, an inch in length.

**** *Leaves alternate, ovate, lanceolate or oblong, all submersed; stipules free.*

7. P. *crǐspus* L. (*curly Pond-weed*); leaves lanceolate waved and serrated 3-nerved, fruit beaked. *E. Bot.* t. 1012; *Ed. Cat.* p. 10.

Ditches and rivers, frequent. *Fl.* June, July. ♃.

8. P. *perfoliátus* L. (*perfoliate Pond-weed*); leaves cordate-ovate amplexicaul 7-nerved with smaller intermediate nerves. *E. Bot.* t. 168; *Ed. Cat.* p. 10.

Ditches and lakes, frequent. *Fl.* July. ♃. — *Peduncles* rather short, thick. *Spikes* oblong-ovate.

9. P. *lúcens* L. (*shining Pond-weed*); leaves elliptic lanceolate mucronate with several opposite pairs of parallel nerves springing from the midrib connected by reticulations, spikes cylindrical many-flowered. *E. Bot.* t. 376; *Ed. Cat.* p. 10.

Lakes, pools, and streams, abundant. *Fl.* June, July. ♃. — The largest of our species, and very beautiful in the nervation of its leaves. Chamisso and Schlechtendal include this in a division of the genus which has sometimes floating and coriaceous leaves (*folia accessoria*), (as it is found by *Mr. Wilson* at Llyn Maclog); they change its name to *P. Proteus*, and consider the *P. heterophyllus* a variety of it. To me they appear distinct; but aquatic plants of all kinds are extremely liable to vary. *Stipules* large, and with two prominent wings at the back. *Stem* thinner than the lower stalk, which is thickened upwards, and about the same length as the spike. *Spikes* cylindrical, 2 inches long. *Nerve* prominent on both sides of the leaf. *Upper leaves* smaller than the *lower* ones, and all suddenly contracted towards the point. — Coriaceous leaves rare, ovato-lanceolate, moderately acute, less evidently stalked than in *P. heterophyllus*; foliage more crowded and stipules larger and (in proportion) narrower than in that species. *Spikes* twice as long. *Wilson.*

10. P. *prælóngus* Wulf. (*long-stalked Pond-weed*); leaves oblong obtuse, with 3 principal and several lesser parallel nerves

arising from the base connected by reticulations, peduncles elongated, spikes cylindrical, many-flowered. *Cham. in Linnæa*, v. ii. p. 191; *Reich. Iconogr.* t. 185; *Ed. Cat.* p. 10. — *β. foliis angustioribus.*

Lakes and pools, Berwickshire. Ditch by Caversham bridge, near Reading: *Mr. Borrer.* Moss of Litie, Nairnshire. Lochleven, along with *β.* *Fl.* July. ♃. — This is best distinguished by its truly oblong (by no means elliptical) *leaves*, nerved from the base, where they are semiamplexicaul, and by the lengthened peduncle. In size it almost equals *P. lucens.* Reichenbach has given an admirable representation of this species.

11. P. *longifólius* Gay (*long-leaved Pond-weed*); leaves all elongato-lanceolate attenuate below apiculate entire, stipules winged, nut . . . .?, spike few-flowered, flowers subverticillate distant, peduncle very long thickened upwards. *Bab. in E. Bot. Suppl.* t. 2847.

Lough Corrib, Galway, Ireland; and in Rydal Water, Westmoreland: *Mr. J. Ball.* *Fl.* July, Aug. ♃. — "Nearly allied to *P. prælongus*, but has not the amplexicaul and hood-tipped leaves of that plant:" *Bab.*

***** *Leaves alternate, upper ones floating, broader than the rest; stipules free.*

12. P. *heterophýllus* Schreb. (*various-leaved Pond-weed*); "upper leaves elliptical stalked floating slightly coriaceous, lower ones lanceolate membranaceous sessile, flower-stalks swelling upwards." *E. Bot.* t. 1285; *Ed. Cat.* p. 10.

Pools and ditches in various parts of the country. *Fl.* June, July. ♃. — *Mr. Wilson* finds this sometimes without floating *leaves*, when it seems intermediate between *P. lanceolatus* and *P. rufescens.* "The *stipules* are not dorsally winged, short and broad, yet with 2 stout principal ribs, ovate and blunt; both they, and the leaves subtending the flower-stalk, *widely spreading.* *Leaves* distantly inserted on the stem; upper ones considerably larger than the rest. — Distinguished by these marks, and the clavate flower-stalk, from *P. rufescens* and *lanceolatus:*" *Wilson.*

13. P. *lanceolátus* Sm. (*lanceolate Pond-weed*); submersed leaves lanceolate tapering at the base membranaceous with about 5—7 nerves and transverse veins, near the middle nerve are small chain-like reticulations, floating leaves elliptic-lanceolate subcoriaceous many-nerved petiolate, peduncle about as long as the leaves, spikes elliptical. *Ed. Cat.* p. 10. — *β.* floating leaves none. P. lanceolatus, *E. Bot.* t. 1985.

Pools and ditches. — *α.* and *β.* growing together in a rivulet in Anglesea. Angus-shire, Kincardineshire. In the Lossie, by Elgin. *Fl.* July. ♃. — This plant had been very little understood till Mr. Wilson found it growing in a small rivulet in Anglesea, having a moderately swift stream. "*Floating leaves* are *always* found where the current is slow. The chain-like reticulations are only distinguishable near the mid-rib on the submersed leaves, the floating leaves being elegantly

overspread by them:" *Wilson in litt.* This is quite correct, and the portion of chain-like reticulations increases gradually upwards. The difficulty is now to distinguish this plant from the preceding, than which, however, it is much smaller and more delicate in all its parts. Sir J. E. Smith considered the *P. setaceus* of Linn. and Huds. and *Fl. Brit.* to be probably the same as the present; but this can hardly be.

14. P. *rufescens* Schrad. (*reddish Pond-weed*); submersed leaves lanceolate membranaceous many-nerved with connecting veins and many linear reticulations at the midrib, floating ones subcoriaceous on long stalks. *Cham. et Schlecht. in Linnæa*, v. ii. p. 210; *Ed. Cat.* p. 10. P. fluitans, *E. Bot.* t. 1286.

Ditches and slow streams in many parts of England; Anglesea. Near Glasgow and Forfar; in the Gaddie, at Premnay, Aberdeenshire. *Fl.* July. ♃. — "This does, in some situations, much resemble *P. lucens.* The coriaceous floating leaves are nearly as acute as the lower ones, differing only in their firmer texture and in being stalked, the ribs, shape and size are much the same in both. The lateral ribs or nerves are by no means separate to the base of the leaf, but arise from various parts of the central rib; some of them one third the length of the leaf from its base; they are from 6—7 in number on each side, 2 of them more evident than the rest: flower-stalk not thickened upwards." *Wilson in litt.* It is remarkable for its reddish-olive colour; and is perhaps better known by its general aspect, size, and hue, than by any character that can be applied to it. To me, the above species with floating leaves seem gradually to pass into one another.

15. P. *nátans* L. (*sharp-fruited broad-leaved Pond-weed*); lower leaves linear submembranaceous or wanting, upper elliptical coriaceous floating, all on long stalks many-nerved distinctly cellular, fruit carinated. *E. Bot.* t. 1822; *E. Fl.* v. i. p. 228.

Stagnant waters and slow streams, frequent. *Fl.* June, July. ♃. — Very variable in the size of the plant, and in the shape of its floating leaves, which are more or less elongated, sometimes linear-lanceolate, obtuse at the base or decurrent at the footstalks. The *lower leaves* appear to me to differ from the submersed leaves of all the others, in having their substance composed of the same small, but distinct, cells or reticulations as the floating ones. These submersed leaves are frequently wholly wanting, especially when the plant grows in very shallow water. Chamisso and Schlechtendal describe the lower petioles as leafless, but this assuredly is not always the case.

16. P. *plantagíneus* Ducr. (*Plantain-leaved Pond-weed*); "leaves all membranous stalked, lower ones oblong, upper elliptical, nuts minute obliquely ovate rounded on the back (when fresh), spike slender cylindrical densely-flowered on a long terete peduncle." *Bab. Fl. Sarn.* p. 99; and in *E. Bot. Suppl.* t. 2848. P. coloratus *Horn.* P. Hornemanni *Meyer.*

Deep peaty pits and ditches, probably far from rare. Vazon Bay, Guernsey: *Babington.* Norfolk, Cambridgeshire, Kent, Berwickshire. *Fl.* June, July. — It has usually been confounded with *P. natans*, from which it may be discriminated by its beautifully diaphanous reticulated leaves, none of which are coriaceous, and its much smaller fruit. It is

more nearly allied to *P. oblongus*, from which its leaves, as well as the acutely keeled back of the fruit when dry, clearly distinguish it; in that plant the fruit is always obtuse: *Bab.*

17. P. *oblóngus* Viv. (*oblong-leaved Pond-weed*); "leaves all stalked, upper ones coriaceous floating oblong-elliptical, lower linear-lanceolate, nuts minute, with their back always obtuse and rounded, spike slender cylindrical densely-flowered, upon a long terete peduncle." *Bab. Fl. Sarn.* p. 99; and in *E. Bot. Suppl.* t. 2849; *Hook. Br. Fl.* (early editions).[1] P. natans *ε. Mert. and Koch.* P. natans *Steud. Nomencl. Bot.* ed. 2. (not even noted as a var.)

"Far from uncommon, in wet ditches, small streams, ponds and bogs." *Fl.* July. ♃. — "It is distinguished from *P. natans*, with which most botanists probably confound it, by the form and size of its fruit as well as by other characters:" *Bab.*

2. Zostéra *Linn.* Grass-wrack.

Stamens and *pistils* inserted in 2 rows upon one side of a *spadix*. *Spatha* foliaceous. *Anthers* ovate, sessile, alternating with the germens. *Germen* ovate. *Style* bifid. *Fruit* with 1 seed (bursting vertically: *Wilson*). — Named from ζωστηρ, a *girdle*, or *riband*, which the leaves somewhat resemble.

1. Z. *marína* L. (*common Grass-wrack*); leaves entire somewhat 3-nerved, stem roundish. *E. Bot.* t. 467; *Ed. Cat.* p. 15.

Creeks and salt-water ditches, and on the sea-shore, common. *Fl.* through the summer. ♃. — *Stems* various in length, as are the linear, obtuse, somewhat 3-nerved *leaves*, which have sheathing bases. *Spadix* linear, arising from a sheathing portion of the leaf, which thus forms the *spatha*. *Flowers* green, on one side of the *spadix*, quite destitute of perianth, in two rows. *Pistils* and *anthers* alternate, generally 2 *anthers* and then 1 *pistil*; both ovate, or oblong-ovate; the *germen* terminated by a long, filiform, bipartite *style*. *Anthers* bursting irregularly. — This plant is used in the packing of glass bottles and earthenware. In the south of Russia, Pallas tells us, it is found among pottery in old tombs. Beds are frequently made of it, especially in the north of Europe; and it is sold in our shops, under the name of "*Alva* (*Ulva* or *Alga*) *marina*," for similar purposes.

3. Rúppia *Linn.* Ruppia.

Flowers 2, on a *spadix* arising from the sheathing bases of the leaves, which perform the office of a *spatha*. *Perianth* 0. *Drupes* 4, pedicellate, their *nuts* one-seeded. — Named after *Henry Bernard Ruppius*, author, in 1718, of *Flora Jenensis*.

1. R. *marítima* L. (*Sea Ruppia*). *E. Bot.* t. 136; *Hook. in Fl. Lond.* t. 50; *Ed. Cat.* p. 11. — *β. Ed. Cat.* p. 11.

[1] It was omitted in the last edition because I had never seen a British specimen, the only authority being Chamisso and Schlecht. as having received specimens from Mr. Turner; and because of my great doubts as to its being really distinct from *P. natans*.

Salt-water pools, and ditches. *Fl.* July, Aug. ♃. — *Stems* slender, filiform, flexuose, branched, leafy. *Leaves* linear, setaceous, with *sheaths* sometimes narrow and small, at other times large and inflated. *Spadix* at first very short, included in the *sheath* or *spatha*, with 2 green *flowers* one above another on opposite sides, and quite destitute of perianth. *Anthers* large, sessile, subquadrate, bursting horizontally, 1-celled. Mertens and Koch say that each pair is, in fact, the 2 cells of 1 anther; and that there are in reality but 2 sessile *stamens*. *Pollen*, a tube with 3 globules, 1 in the middle and 1 at each end of the tube. *Germens* resembling 4 minute tubercles in the centre between the anthers. At the time of flowering, the *spadix* lengthens remarkably, to the height of 5 or 6 inches or more, and becomes spirally twisted, so as to bring the blossoms to the surface of the water: but Mr. Wilson observes the fruit to be submerged in every stage. When the *germens* swell, their base is elongated into a footstalk, one or two inches long. Each then becomes an oblique, ovate, acuminated *drupe*. This *drupe* is sometimes more beaked than at other times, and the sheaths of the leaves are sometimes but little dilated; then the plant becomes *R. rostellata* of Koch, and of Reichenbach in his *Iconog.* t. 174. f. 306, which indeed is the more common state of the plant with us. I have only seen such large sheaths as are figured for the true *R. maritima* Linn. (Reichenb. *Iconog.* t. 174. f. 307), on specimens from the south of Europe. Yet the latter author quotes my figures in *Flora Lond.* as admirably characteristic of his *maritima*.

4. Zannichéllia *Linn.* Horned Pondweed.

Barren fl. Perianth none. — *Fert. fl. Perianth* single, of 1 leaf. *Germens* 4 or more. *Style* 1. *Stigma* peltate. *Capsules* nearly sessile. — Named in honour of *John Jerome Zannichelli*, a Venetian apothecary and botanist.

1. Z. *palústris* L. (*common Horned Pondweed*); *E. Bot.* t. 1844; *Ed. Cat.* p. 15. β. pedunculata *Reich.*: *Ed. Cat.* p. 15.

Ditches and stagnant waters. *Fl.* Aug. ☉. — Floating. *Stems* long, filiform, branched. *Leaves* opposite, linear, entire, sometimes emarginate at the point. *Flowers* axillary, from a membranaceous bractea. *Sterile fl.* upon a very short stalk, from the base of which arises a single naked *anther*, borne on a long white *filament*. *Anthers* with 2—4 cells. — The form of the stigma, the number of anther-cells, the size and mode of growth, and the fruits more or less stipitate, are very variable; and several proposed species are described and figured by Reichenbach.

Ord. LXXXVII. SMILACEÆ.

Perianth 6—8-partite or 6-cleft, petaloid, regular. *Stamens* 3—6 or 8, hypogynous or perigynous, the 3 opposite the outer segments usually of a different form. *Ovary* free, 3—4-celled. *Cells* 1- 2- or many-seeded. *Style* 1. *Stigma* tripartite. *Fruit* a *berry*. *Integument* of the *seeds* generally membranous. *Albumen* corneous. — Stem *often leafy*. Root *not bulbous*. *Smilax Sarsaparilla* is the true Sarsaparilla. (Professor Lindley unites this Order with the two following, under the head of Liliaceæ.)

1. Rúscus *Linn.* Butcher's Broom.

Barren fl. *Perianth* single, of 6 leaves. *Filaments* combined at the base. *Anthers* 3—6. — *Fertile fl.* *Perianth* single, of 6 leaves. *Nectary* tubular. *Style* 1. *Stigma* 1. *Berry* superior, 3-celled; *cells* 2-seeded. — Name: anciently *bruscus;* from *bruskelen,* in Celtic, *box-holly.*

1. R. *aculeátus* L. (*common Butcher's Broom*); stem rigid branched, leaves ovate-acuminate very rigid and pungent bearing the solitary flower on their upper surface. *E. Bot.* t. 560; *Ed. Cat.* p. 11.

Bushy and heathy places and woods, especially in a gravelly soil. Abundant in the south of England and Jersey; rare in Scotland. Bothwell woods. Skeldon woods near Ayr. *Fl.* March, April. ♄ — *Flowers* minute, white, arising from the disk of the evergreen *leaves. Berry* red.

2. Convallária *Linn.* Lily of the Valley, or Solomon's Seal.

Perianth inferior, petaloid, deciduous, 6-cleft, globose or cylindrical. *Berry* 3-celled. *Seeds* 1—2 in each cell. — Name: *convallis,* a *valley*; from the locality of the species.

1. C. *majális* L. (*Lily of the Valley*); scape semi-cylindrical, leaves 2 ovate-lanceolate radical, flowers racemed globose-campanulate drooping. *E. Bot.* t. 1035; *Ed. Cat.* p. 4.

Woods and coppices, particularly in a light soil: frequent in England and in several places in Scotland. *Fl.* May. ♃. — *Flowers* very pure white, fragrant, segments recurved. *Berries* red, globose.

2. C. *verticilláta* L. (*narrow-leaved Solomon's Seal*); leaves lanceolate whorled, flowers cylindrical. *E. Bot.* t. 128; *Ed. Cat.* p. 4.

Woods and glens, very rare, and only found in Scotland. Den of Rechip, 4 miles N. E. of Dunkeld: *Mr. A. Bruce.* It has been pointed out to *Mr. James Macnab* as indigenous in the woods at Blair in Athol. *Fl.* June. ♃. — 2 ft. high. *Leaves* numerous, bright-green, 3—4 in a whorl. *Flowers* solitary, or with branched footstalks, drooping.

3. C. *multiflóra* L. (*common Solomon's Seal*); leaves ovate-elliptical alternate half-embracing the rounded stem, peduncles axillary one- or many-flowered, flowers cylindrical, filaments hairy. *E. Bot.* t. 279; *Ed. Cat.* p. 4.

Woods and coppices, in various parts of England and the south of Scotland: also at Kingusie, 7 miles from Aberdeen. *Fl.* May, June. ♃. — 2 ft. high, bare of leaves below. *Leaves* large, marked with longitudinal nerves, secund; the *flowers* drooping in an opposite direction, white, greenish at the tips. *Berries* bluish-black.

4. C. *Polygónatum* L. (*angular Solomon's Seal*); leaves ovate-elliptical alternate half-embracing the angular stem, peduncles mostly single-flowered, flowers cylindrical, filaments glabrous. *E. Bot.* t. 280; *Ed. Cat.* p. 4.

Woods in England, rare; in Yorkshire, Somerset, and Kent. *Fl.* May, June. ♃. — Smaller than the last. *Flowers* greener, fragrant.

3. Páris *Linn.* Herb Paris.

Cal. of 4 leaves. *Pet.* 4. *Cells* of the *anthers* fixed one on each side the middle of a subulate *filament*. *Berry* 4-celled; each *cell* with several *seeds* in two rows. — Named, it is said, from *par*, *paris*, (*equal*), on account of the regularity of its leaves and flowers.

1. P. *quadrifólia* L. (*common Herb Paris*); leaves ovate 4 in a whorl. *E. Bot.* t. 7; *Ed. Cat.* p. 9.

Moist and wet shady woods, in many parts of England and Scotland. Killarney, Ireland. *Fl.* May, June. ♃. — *Stem* 1 ft. high, with 4, rarely 5, whorled, large, ovate, acute *leaves* at its summit, the rest leafless. *Flower* single, terminal, on a footstalk about 2 inches long. *Cal.* of 4 linear-lanceolate, green *leaflets; petals* similar to these, but narrower and more yellow. *Roots* purgative. *Berry* esteemed poisonous; but it has been employed in curing inflammation in the eyes.

Ord. LXXXVIII. LILIACEÆ.

Perianth coloured, 6-partite, or, by the cohesion of the claws of the segments into a tube, 6-cleft. *Stamens* 6, perigynous. *Ovary* free, 3-celled, many-seeded. *Stigma* simple or 3-lobed. *Capsule* with 3 cells. *Seeds* flat, with a spongy, dilated, often winged integument, neither black, nor crustaceous. *Embryo* in a fleshy *albumen*, having the same direction as the seed. — Flowers *large, usually of vivid colours, often solitary.* Leaves *fleshy, cauline ones indistinctly nerved.* Roots *bulbous.*

1. Fritillária *Linn.* Fritillary.

Perianth campanulate, inferior, of 6 pieces, each with a nectariferous cavity. *Stigmas* 3. *Capsule* 3-celled, 3-valved, oblong. *Seeds* flat. — Name derived from *fritillus*, a *dice-board*, in allusion to the chequered colours in the flower.

1. F. *Meleágris* L. (*common Fritillary* or *Snake's-head*); stem single-flowered, leaves alternate linear-lanceolate, points of the perianth inflexed, nectary linear. *E. Bot.* t. 622; *Ed. Cat.* p. 5.

Meadows and pastures, principally in the east and south of England. *Fl.* April. ♃. — Varies with white *flowers*. Specific name derived from the *Numidia Meleagris*, or *Pintado*, whose plumage is chequered in a somewhat similar manner.

2. Túlipa. Tulip.

Perianth campanulate, inferior, of 6 pieces. *Nectaries* 0. *Stigma* sessile, 3-lobed. *Capsule* trigonous. *Seeds* flat. — Name: from *toliban*, the Persian name for a *turban*, whose gay colours are similar to those of the tulip. (*Théis.*)

1. T. **sylvéstris* L. (*wild Tulip*); stem 1-flowered somewhat drooping, leaves of the perianth ovato-acuminate bearded at the extremity, stamens hairy at the base, stigma obtuse. *E. Bot.* t. 63; *Ed. Cat.* p. 14.

Chalk-pits in Norfolk, Suffolk, Hertfordshire, and Middlesex. In Scotland, near Hamilton and Brechin; and in an old quarry at Bennie Craig, Firth of Forth. Petreane and Otterstone: *Dr. Dewar. Fl.* April. ♃.—*Flowers* yellow, fragrant. *Anthers* and *pollen* yellow. *Leaves* linear-lanceolate. The *wild Tulip* increases by throwing out a long stout fibre from its *root*, at the extremity of which a *bulb* appears. Thus is a new individual planted at a considerable distance from the parent.

Ord. LXXXIX. ASPHODELEÆ.

Perianth 6-partite, or 6-cleft, petaloid, regular. *Stamens* 6, either perigynous or hypogynous; the 3 opposite the outer segments either of a different form or absent. *Ovary* free, 3-celled, 1- 2- or many-seeded. *Style* 1. *Stigma* simple. *Capsule* 3-celled, 3-valved, bearing the dissepiment in the middle. *Integument* of the *seed* black, crustaceous, and brittle. *Albumen* fleshy or cartilaginous. Root *bulbous*. — Chiefly distinguished from the preceding Order by the black crustaceous testa of the seed. Most of the family contain a bitter juice. The root of *Scilla maritima* affords the *Squill* of the shops. *Soccotrine Aloes* are produced by *Aloe Soccotrina; Barbadoes Aloes* by *A. perfoliata*. *New Zealand Flax* is the fibre from the leaves of *Phormium tenax*. *Gum-Dragon* is the concrete juice of *Dracæna Draco*.

1. A'llium. Onion.

* *Stem-leaves plane.*

Perianth inferior, petaloid, of 6 ovate spreading pieces. *Caps.* triquetrous. (*Flowers umbellate, arising from a 2-leaved spatha.*)—Named from the Celtic *all*, which signifies *acrid, burning*. (*Théis.*)

1. A. **Ampelóprasum* L. (*great round-headed Garlic*); umbels globose without bulbs, leaves linear keeled acuminate, 3 alternate stamens deeply 3-cleft. *E. Bot.* t. 1657; *Ed. Cat.* p. 1.

Rare. On Holmes Island in the Severn, *Ray;* the remains of ancient cultivation, *Borrer. Fl.* Aug. ♃.—2—3 ft. high, with broad acuminated *leaves*, and large heads of purplish-white *flowers*: allied to *A. Porrum*, the *leek*, in habit, but differing in its perennial and clustered young bulbs. The specific name, αμπελος, a *vine*, and πρασον, a *leek*, means *onion of the vineyard*. *Porrum*, says Théis, is from *pori*, to *eat*, in Celtic; whence comes our word *porridge*.

2. A. *arenárium* L. (*Sand Garlic*); umbels bearing bulbs compact spherical, leaves linear with cylindrical sheaths, 3 al-

ternate stamens 3-cleft, leaves of the spatha short obtuse. *E. Bot.* t. 1358; *Ed. Cat.* p. 1.

Mountainous woods and fields, in sandy soil, principally in the north of England. Perthshire and Angus-shire. Portmarnock sands, Ireland. *Fl.* July. ♃.—*Stem* 2—3 ft. high, leafy below, rounded, glabrous. Heads dense, with purple *flowers*, rather small. *Spatha* often of 3 very short, ovate, obtuse segments. Mr. Borrer observes: "I can make nothing of the *Eng. Bot.* figure of this plant. All that I have seen as the British *A. arenarium* is *A. Scorodoprasum* Linn., and produces a head of numerous bulbs and few flowers. Mr. Eagle found in the Lizard district (where I have gathered it, but only in orchards) a much larger plant, with numerous bulbs among the flowers as large as hasel nuts, and a long point to the spatha, like that of *A. Ampeloprasum*, with which it agrees also in the leaves. Mr. Babington suggests that it is probably *A. Scorodoprasum* β. Linn. (Haller's plant), but quite distinct from *A. Scorodoprasum* α."

3. A. *carinátum* L. (*Mountain Garlic*); umbels bearing bulbs lax, leaves linear keeled, stamens all simple, leaves of the spatha very unequal. *E. Bot.* t. 1658; *Ed. Cat.* p. 1.

Sandy ground on the south-east coast of England, and mountainous situations in the north. Banks of the Isla, Scotland. Near Dublin. *Fl.* July. ♃.—3 ft. high. *Stems* rounded, glabrous, leafy below. *Flowers* upon long wavy peduncles, pale brownish-white. Smith considers it to differ from the following only in its more compressed leaves.

** *Stem-leaves rounded.*

4. A. *oleráceum* L. (*streaked Field-Garlic*); umbel bearing bulbs lax, leaves grooved above, stamens all simple, leaves of the spatha with long points. *E. Bot.* t. 488; *Ed. Cat.* p. 1.

Borders of fields in Essex, about Bristol, in Norfolk, Westmoreland, and Yorkshire. St. David's, Scotland. *Fl.* July. ♃.

5. A. *vineále* L. (*Crow Garlic*); umbel bearing numerous bulbs, leaves fistulose, stamens deeply 3-cleft. *E. Bot.* t. 1974.

Corn-fields, waste places, &c., not unfrequent throughout England and the south of Scotland: and near Dublin, Ireland. *Fl.* June. ♃.—*Stem* 1½ to 2 feet high. *Bulbs* numerous. *Spatha* of 2 rather small, deciduous *leaves*. *Flowers* on longish peduncles, which are thickened upwards, few, erect, reddish, green on the keels, shorter than the *stamens*, whose *filaments*, as well as the *anthers*, are protruded.

6. A. *sphærocéphalum* L. (*small round-headed Garlic*); scape leafy below, leaves subcylindrical channelled above smooth fistular, spatha 2-valved, umbel globular without bulbs, stamens twice as long as the perianth the alternate ones 3-cleft, capsule obtusely trigonous, bulb accompanied by stalked offsets. *Bab. in Engl. Bot. Suppl.* t. 2831; *Curt. Bot. Mag.* t. 251; *Ed. Cat.* p. 1.

On the sands of St. Aubin's Bay, Jersey: *Babington* and *Christy*. *Fl.* June, July.

**** Leaves all radical.*

7. A. *ursínum* L. (*broad-leaved Garlic* or *Ramsons*); umbel nearly plane, leaves ovate-lanceolate on footstalks, scape triangular. *E. Bot.* t. 122.

Moist woods and hedge-banks, frequent. *Fl.* June. ♃.—*Flowers* white. *Umbels* without bulbs, level-topped. *Spatha* of 2 ovate-lanceolate *leaves.*

8. A. *Schœnóprasum* L. (*Chive Garlic*); leaves rounded subulato-filiform fistulose, scape rounded as long as the leaves. *E. Bot.* t. 2441; *Ed. Cat.* p. 1.—*β. Ed. Cat.* p. 1.

Meadows and pastures rare. Westmoreland, Berwickshire, and Argyleshire. Above Kynance Cove, Cornwall. *Fl.* June. ♃.— 1ft. high. Heads of *flowers* compact, purplish. *Stam.* simple. *Spatha* of 2 short ovate leaves. *Umbel* without bulbs. — Specific name from σχοινος, a *rush*, and πρασον, a *leek*: i. e. *rush-leaved onion.* The plant among the rocks at Kynance (at least that which I have seen in various places along the cliffs between Kynance Cove and Mullion) is *A. Sibiricum* Linn., differing, whether specifically or not, from *A. Schœnoprasum* (the *chives* of our kitchen-gardens) by its larger size, less clustered bulbs, variously curved instead of upright leaves, and (under a glass) crenulate instead of even striæ of the stem and leaves, differences which it has retained several years in my garden. *A. Sibiricum* abounds also on the sea-cliffs at Tintagel, where it was discovered by the *Rev. R. T. Bree.* (*Mr. Borrer.*)

(*Allium ambiguum* Sm. in *Fl. Græca*, "almost exclusively confined to the south of Europe, and an old inhabitant of our gardens," one cannot but regret to see introduced into the *English Botany* (tab. 2803.) solely on the ground of its having been found, in a very suspicious locality, a little above Rochester.)

2. Gágea *Salisb.* Gagea.

Perianth coloured, of 6 persistent pieces, connivent below, spreading above. *Filaments* not dilated at the base. *Capsule* triangular. (*Flowers corymbose or umbellate, yellow, with foliaceous bracteas.*) — Named in honour of the late *Sir Thos. Gage*, Bart., an excellent British botanist.

1. G. *lútea* Ker (*yellow Gagea*); radical leaves 1—2 linear-lanceolate longer than the angular scape, umbel simple, bracteas linear-lanceolate longer than the umbel, leaves of the perianth obtuse. *Ed. Cat.* p. 6. Ornithogalum, *E. Bot.* t. 21.

Woods and pastures, in several parts of England and Lowlands of Scotland. *Fl.* March, Apr. ♃.

3. Ornithógalum. Star of Bethlehem.

Perianth inferior, petaloid, of 6 persistent pieces. *Stam.* alternately larger or dilated at the base. *Capsules* with 3 angles and 3 furrows. (*Flowers racemose or corymbose. Bracteas membranaceous.*)—Named from ορνις, a *bird*, and γαλα, *milk.* Linnæus imagines that the roots of *O. umbellatum* are

the "*Dove's Dung,*" which was sold so dear at the siege of Samaria, as mentioned in the 2d book of Kings: they are still much used as food in the Levant. (*See E. Bot.* t. 130.)

1. O. *Pyrenáicum* L. (*spiked Star of Bethlehem*); racemes elongated, filaments all dilated, peduncles equal spreading erect in fruit. *E. Bot.* t. 499; *Ed. Cat.* p. 9.

Rare. Pastures in Somersetshire, Sussex, and Bedfordshire. *Fl.* June, July. ♃.—*Bulb* ovate. *Leaves* long, linear, acuminate, channelled. *Scape* 1½ to 2 ft. long. *Raceme* elongated. *Flowers* much smaller than in the two following species, greenish-white.

2. O. **umbellátum* L. (*common Star of Bethlehem*); racemes corymbose, peduncles longer than the bracteas, filaments subulate. *E. Bot.* t. 130; *Ed. Cat.* p. 9.

Meadows and pastures in various parts of England. Near Glasgow. *Fl.* Apr. May. ♃.—8—10 inches high. *Leaves* linear, acuminate, grooved. *Flowers* large, few, 6—9, lower pedicels very long, so that their flowers reach to the same height with the upper ones, thus forming a *corymb*, each having a membranous lanceolate *bractea*. *Segments* of the *perianth* green, with a white margin and white within.

3. O. **nútans* L. (*drooping Star of Bethlehem*); flowers pendulous unilateral, filaments broad cloven alternately longer and with deeper lobes. *E. Bot.* t. 1997; *Ed. Cat.* p. 9.

Fields and orchards, Bedfordshire, Suffolk, Derby, and Nottingham. *Fl.* Apr. May. ♃.—*Flowers* in a true, but lax, *raceme*, larger than the last, and having the *filaments* of their *stamens* of a very peculiar structure.

4. Scílla *Linn.* Squill.

Perianth inferior, of 6 leaves, petaloid, spreading and deciduous. *Filaments* filiform, glabrous, inserted at the base of the perianth. (*Flowers racemed.*)—Named from σκυλλω, to *injure:* in Arabic also *ásgyl.* The root of *S. maritima* is said to be highly poisonous, and it affords a valuable medicine.

1. S. *vérna* Huds. (*vernal Squill*); bulb coated, raceme in a hemispherical few-flowered corymb, bracteas lanceolate obtuse, leaves linear channelled. *E. Bot.* t. 23; *Ed. Cat.* p. 12.

Common on the coasts of the western and northern parts of Great Britain, frequent in Orkney and Shetland. In Ireland. *Fl.* April. ♃. —*Plant* 4—5 inches high. *Leaves* few, nearly as long as the scape. *Flowers* fragrant, deep blue. *Filaments* dilated downwards: *bracteas* membranaceous.

2. S. **bifólia* L. (*twin-leaved Squill*); bulb coated, raceme lax subcorymbose, bracteas obsolete, leaves lanceolate mostly 2. *E. Bot.* t. 23; *Ed. Cat.* p. 12.

A very dubious native. It exists in *Buddle's Herbarium*, and was received from the west of England by *Mr. Sims* of Norwich. *Fl.* March, April. ♃.—*Flowers* pale blue.

3. S. *autumnális* L. (*autumnal Squill*); bulb coated, raceme

scarcely corymbose, bracteas none, pedicels and stamens about as long as the perianth, leaves linear several. *E. Bot.* t. 78; *Ed. Cat.* p. 12.

Dry pastures and rocks, in Cornwall, and near Bristol. Moulsey Hurst: *Ray.* Blackheath and Richmond, abundant. Flagpost-hill, Torquay. Jersey. *Fl.* Sept. ♃.— *Flowers* pinkish-purple, in perfection before the *leaves* appear: *Miss E. Warren.*

5. Hyacínthus *Linn.* Hyacinth.

Perianth inferior, of 1 piece, petaloid, 6-cleft or 6-partite, tubular, reflexed at the extremity. *Stamens* included.—Named from the youth *Hyacinthus*, who, being killed by Apollo, was by him changed into a plant, whose foliage bore in dark streaks the initials of his name. Our only British species, having no mark or figure on the leaf, was hence called *non-scriptus.*

1. H. *non-scríptus* L. (*wild Hyacinth* or *Blue-bell*); flowers in a raceme drooping, perianth 6-partite the extremities reflexed, bracteas in pairs. Scilla nutans, *E. Bot.* t. 377. Agraphis nutans *Link: Ed. Cat.* p. 1.

Woods, copses, and hedge-rows; varying with white and more rarely rose-coloured *flowers*. *Fl.* May. ♃.— *Leaves* long, linear, channelled, acuminate. *Scape* 1 foot high, with 2 *bracteas* at the base of each short *pedicel.*—The habit of this plant is surely more that of *H. orientalis* than of any true *Scilla.*

6. Muscári *Tourn.* Grape-Hyacinth.

Perianth inferior, of 1 piece, petaloid, ovate, inflated, 6-toothed. *Capsule* trigonous, with prominent angles; *cells* 2-seeded. *Duby.*—Named from μοσχος, *musk*, a smell yielded by one species.

1. M. **racemósum* Mill. (*Starch Grape-Hyacinth*); flowers crowded ovate upper ones sessile, leaves linear flaccid keeled longer than the scape. *Ed. Cat.* p. 9. Hyacinthus *L.: E. Bot.* t. 1931.

Grassy fields, &c. *Fl.* May. ♃.— *Flowers* deep blue, smelling like starch.

7. Anthéricum *Linn.* Spider-wort.

Perianth inferior, petaloid, of 6 equal, spreading, elliptical pieces. *Stam.* filiform, mostly bearded. *Capsule* roundish 3-celled; *seeds* angular.—Named from ανθερικος, applied by the Greeks to the stem of the *Asphodel.*

1. A *serótinum* L. (*Mountain Spider-wort*); leaves semi-cylindrical, cauline ones dilated at their base, flowers mostly solitary. *E. Bot.* t. 793. Lloydia serotina *Salisb.: Ed. Cat.* p. 8.

Rare, on the Welsh mountains. On Snowdon, Crib y Ddescil, near

Llanberis ; and Cwm Idwel, Caernarvonshire. (*E. Fl.*) " On Snowdon, as well as on rocks by Twll dû, and near the summit of Glyder Fawr ; all neighbouring, but distinct situations :" *Mr. W. Wilson. Fl.* June. ♃.—5—6 inches high. " *Flower-stalk* invested with its own sheath, and separated by an elongation of the *root* from the *leaves*, of which the most distant encloses within its fleshy base the rudiment of the plant of the following season. The plant is increased by offsets or creeping shoots with a bulb at the extremity, the point of the bulb directed towards the parent root. *Perianth* permanent, withering : its segments nectariferous. *Stamens* not attached to the perianth, beardless. The lateral ribs at the back of the leaf are one on each side of the keel, not 'of the leaf.' Two-flowered specimens are very unfrequent :" *W. Wilson.*

8. Aspáragus *Linn.* Asparagus.

Perianth inferior, 6-partite, deciduous. *Stigmas* 3. *Berry* globose, 3-celled. *Seeds* few. *Embryo* eccentric.—Name : ασπαραγος, in Greek, from σπαρασσω, to *tear ;* many of the species being armed with spines.

1. A. *officinális* L. (*common Asparagus*); unarmed, stem herbaceous mostly erect rounded very much branched, leaves setaceous fasciculate flexible, peduncles jointed in the middle. *E. Bot.* t. 339 ; *Ed. Cat.* p. 2. — β. procumbent, *Ed. Cat.* p. 2.

In several parts of the west and south-west coasts of England. On an island, thence called " *Asparagus Island*," Kynance Cove, Cornwall. Links near Gosford, Scotland.—β. south-west coast of Anglesea, rare : *Mr. W. Wilson. Fl.* Aug. ♃. — *Root* creeping, throwing up numerous scaly erect *stems*, which, when cultivated, form the *Asparagus* of our tables ; rarely, in a wild state, exceeding a foot in height. *Flowers* drooping, greenish-white. *Berries* bright red.

Ord. XC. MELANTHACEÆ.

Perianth petaloid, 6-partite or tubular by the cohesion of the claws of the segments, which are often rolled inward before expansion. *Stamens* 6, perigynous. *Anthers* usually turned outwards. *Ovary* free, with 3 *cells* and many *seeds*. *Style* partly or entirely divided into 3. *Stigmas* undivided. *Capsules* separable into 3 valves. *Integument* of the *seeds* neither black nor crustaceous, but membranous. *Albumen* firm, fleshy.—Root *sometimes bulbous*. Leaves *sheathing at the base, with parallel nerves.*—Strongly narcotic, diuretic, and cathartic. Veratrine is extracted from *Veratrum Sabadilla.*

1. Cólchicum *Linn.* Meadow-Saffron.

Perianth single, tubular, very long, rising from a spatha ; *limb* campanulate, 6-partite, petaloid. *Caps.* 3-celled ; *cells* united at the base.—Named from *Colchis*, where it was said to grow abundantly.

1. C. *autumnále* L. (*common Meadow-Saffron*) ; leaves plane

broadly lanceolate erect. *E. Bot.* t. 133; *Ed. Cat.* p. 4. *Var.* with late green abortive flowers. *E. Bot.* t. 1432.

Meadows and pastures, chiefly in the north-west of England: *Ray.* In Suffolk, Oxfordshire, Staffordshire, Cheshire, and other places. Alloa, Scotland. *Fl.* Sept. Oct. — Fruit and leaves in the spring. ♃. — *Bulb* solid. The *flowers* appear in succession, rising from the *bulb*, with a very long, narrow *tube*, surrounded at the base with a membranous sheath. The *stamens* are inserted on the oblong-ovate *segments* of the pale purple *perianth*. *Germen* at the base of the bulb, its long thread-like *styles* running up the whole length of the tube. The *leaves* and *fruit* appear in spring and are withered before summer. Its properties are said to be similar to those of the *officinal Squill*, and it has been employed as a substitute for the famous *Eau médicinale*.

2. Tofiéldia *Huds.* Scottish Asphodel.

Perianth single, 6-partite, having a small 3-partite *involucre*. *Stamens* glabrous. *Caps.* 3—6-celled; *cells* united at the base, many-seeded. — Named in honour of *Mr. Tofield*, an English botanist.

1. T. *palústris* Huds. (*Scottish Asphodel*); spike ovate, stem glabrous filiform nearly leafless, petals obovate obtuse, germen 3-lobed, involucre at the base of the pedicel. *E. Bot.* t. 536; *Ed. Cat.* p. 14. T. borealis *Wahl.* Anthericum calyculatum *L.*

Mountains of England, Scotland, and Ireland, in boggy places; not rare. *Fl.* July, Aug. ♃. — 4—6 inches high. *Leaves* almost wholly radical, in fascicles, linear, sword-shaped, equitant. *Flowers* small, pale yellowish-white.

Ord. XCI. RESTIACEÆ.

Flowers glumaceous, 2—6-partite, seldom 0. *Stamens* hypogynous, 1—6; when 2 or 3, in a 4—6-divided *perianth*, opposite the inner segments of the latter. *Ovary* free, with 1 or more cells. *Ovules* solitary, pendulous. *Fruit* capsular or nucumentaceous. *Seeds* inverted. *Embryo* lenticular, within the base of a copious *albumen*. — Herbs (*and, in some species of* Eriocaulon, *marsh-plants*) or under-shrubs. Leaves *simple, narrow or* 0. Stems *naked, or more usually with sheaths slit on one side.* Flowers *generally monœcious, in spikes or heads, and separated by scales or bracteas.*

1. Eriocaúlon *Linn.* Pipewort.

Flowers collected into a compact, scaly *head*. — *Barren flowers* in the centre. *Perianth* single, 4—6-cleft, the *inner segments* united nearly to their summit. *Stam.* 4—6. — *Fertile flowers* in the circumference. *Perianth* single, deeply 4-partite. *Style* 1. *Stigmas* 2—3. *Capsule* 2—3-lobed, 2—3-celled. *Cells* 1-seeded. — Named from εριον, *wool*, and καυλος, the *stem*; in allusion to the downy stems or scapes of the species first known.

1. E. *septanguláre* With. (*jointed Pipewort*); scapes striated longer than the cellular compressed subulate glabrous leaves, flowers 4-cleft hairy at the extremities as well as the scales, stamens 4, capsule 2-celled. *E. Bot.* t. 733; *Hook. in Fl. Lond.* n. s. t. 52; *Ed. Cat.* p. 5.

Lakes in mountainous countries, rare. In Skye, Coll, and a few of the neighbouring islands of the Hebrides. Cunnamara, N. W. of Ireland, frequent. *Fl.* Aug. ♃. — *Roots* creeping, and throwing out innumerable, white, curiously articulated *fibres*, which penetrate deep into the mud. *Leaves* pellucid, beautifully cellular, as is the *scape*. *Head* of numerous, compact, minute *flowers;* each with an obovate, membranous, concave *scale*, nearly as long as itself. *Two outer segments* of the *perianth* duplicato-carinate, purplish; *two inner* white, of the central *sterile flowers* united for a great proportion of the length, so as to be two-lipped at the extremity; each *lip* bearing a *stamen*, and above that a black sessile *gland;* and on each side, between the two lips, a *stamen:* in the centre between these are 2 black, stalked glands (abortive *styles?*). In the *fertile* flowers, the 4 segments are almost equally divided to their base, the inner having a black, sessile gland at the extremity. *Pistil* shortly stipitate. *Germen* of 2 globose lobes. *Style* short. *Stigmas* 2, long, subulate. — In the *Flora Londinensis* I have not represented the sterile flower correctly, as to its usual appearance; nor the situation of the *gland*, which is not below, but above, the point of insertion of the *stamen*.

Ord. XCII. JUNCEÆ.

Perianth 6-partite, subglumaceous, persistent. *Stamens* 6, inserted into the base of the segments, or sometimes 3, and then opposite the outer segments. *Ovary* free, 1—3-celled, 1—many-seeded, or 1-celled and 3-seeded. *Style* 1. *Stigmas* usually 3, sometimes 1. *Fruit* capsular, with 3 valves, bearing the dissepiment in the middle, rarely closed and by abortion 1-seeded. *Embryo* cylindrical, at the base of a hard fleshy or cartilaginous *albumen*. — Herbs; *mostly with grassy or subulate leaves, sometimes wanting; and mostly brown and glumaceous flowers.*

1. Júncus *Linn.* Rush.

Perianth inferior, of 6 leaves, glumaceous. *Caps.* 3-celled, 3-valved; *valves* with the seed-bearing *dissepiments* in their middle. (*Leaves rigid, mostly rounded, rarely plane, glabrous.*) — Named from *jungo*, to *join;* the leaves and stems of this genus having been employed as cordage.

* *Leaves none. Barren scapes resembling leaves. Panicle lateral. Flowers scattered.*

1. J. *glaúcus* Ehrh. (*hard Rush*); scapes deeply striated rigid, panicle much branched, leaves of the perianth lanceolate subulate nearly equal, longer than the elliptical capsule. *E. Bot.* t. 665; *Ed. Cat.* p. 7.

Wet pastures and by road-sides. *Fl.* July. ♃. — *Root* creeping.

Scapes 1—2 ft. high, glaucous, rigid, at the base covered with deep purple-brown, membranaceous, shining *sheaths*. *Panicle* lax, erect. *Flowers* slender, pale brown, with a broad green line down the middle of each leaflet of the perianth. *Bracteas* also small and acuminate.

2. J. *effúsus* L. (*soft Rush*); scapes very faintly striated soft, panicle loose very much branched, spreading leaflets of the perianth lanceolate nearly acuminate rather longer than the obovate obtuse capsule. *E. Bot.* t. 836; *Ed. Cat.* p. 7.

Marshy ground, common. *Fl.* July. ♃. — Distinguishable from the last, by its soft, pliable, almost smooth (scarcely striated) *scapes*, and spreading denser and shorter *panicles*, in which particulars it approaches the following species. *Stam.* 3 or 6. — Excellent, as is the following, for plaiting into mats, chair-bottoms, &c. Wicks of candles are made of the pith.

3. J. *conglomerátus* L. (*common Rush*); scapes very faintly striated soft, panicle much branched very dense globose, leaflets of the perianth lanceolate acute nearly equal about as long as the broadly ovate very obtuse capsule, stamens 3. *E. Bot.* t. 1835; *Ed. Cat.* p. 7.

Marshy ground, frequent. *Fl.* July. ♃. — *Panicle* very dense. *Scape* resembling the last, and employed for the same purposes.

4. J. *Bálticus* Willd. (*Baltic Rush*); scapes very obscurely striated, panicle erect branched, leaflets of the perianth nearly equal very acute as long as the elliptical capsule, stamens 6. *Hook. in E. Bot. Suppl.* t. 2621; *Ed. Cat.* p. 7. J. arcticus *Hook. in Fl. Lond.* t. 151; *E. Fl.* vol. ii. p. 163 (not *Willd.*).

Sandy sea-shores in Scotland; near Dundee: *Mr. T. Drummond.* Farr, and Cape Wrath, Sutherland: *Dr. Graham.* Aberdeenshire. Stotfield, 6 m. from Elgin; and between Findhorn and Spey, on the banks of the Lossie, 7 m. from the sea; and at St. Andrew's Llanbridge, where the sea formerly reached. *Fl.* July. ♃. — This comes so near the true *J. arcticus*, that I had myself considered it as the same, or only a large *var.* of it. It is, however, assuredly the *J. Balticus* of Willdenow, and differs from *J. arcticus* in its much taller and more rigid *scapes*, larger and decidedly branched *panicle*, and rounded, not trigonous, *capsules*. Both have exceedingly creeping *roots*, more so than any other species I am acquainted with. *Flowers* dark brown, with a pale line down the centre of each segment.

5. J. *filifórmis* L. (*Thread Rush*); scapes filiform, panicle simple of few flowers from near the middle of the scape, leaflets of the perianth lanceolate acuminate nearly equal larger than the obovate capsule, stamens 6. *E. Bot.* t. 1175; *Ed. Cat.* p. 7.

Stony margins of lakes in Cumberland, Westmoreland, and Lancashire. Ben-Lawers, and several parts of Scotland; but I have never seen Scottish specimens. *Fl.* July, Aug. ♃. — *Root* creeping. *Plant* remarkable for its slender *scapes*, greatly extended beyond the *panicle*; its pale greenish *flowers* and short *capsules*.

** *Leaves none. Barren scapes resembling leaves. Panicle terminal. Flowers aggregated.*

6. J. *marítimus* Sm. (*lesser sharp Sea Rush*); barren scapes and outer bracteas pungent, panicle very compound, clusters 4—8-flowered, leaflets of the perianth equal lanceolate acute as long as the elliptical mucronated capsule. *E. Bot.* t. 1725; *Ed. Cat.* p. 7. J. acutus β. *L.*

Salt-marshes in various parts of England, but not frequent. St. Andrew's, Scotland. Coast of Ayrshire. Kingstown and other places in Ireland. *Fl.* Aug. ♃. — In this and the following, the outer *bractea*, or portion that rises above the panicle, is broad and membranous at the base, and less like a continuation of the scape than in the species of the preceding division.

7. J. *acútus* L. (*great sharp Sea Rush*); barren scapes and outer bracteas pungent, panicle very compound mostly compact, clusters 2—4-flowered, leaflets of the perianth equal, interior ones with a broad membranous margin at the apex shorter than the broadly ovate suddenly acuminated capsule. *E. Bot.* t. 1614; *Ed. Cat.* p. 7.

Sandy sea-shores, principally on the south and west of England and Wales. Norfolk. Wicklow and Arklow, Ireland. *Fl.* July. ♃.— Larger and stouter than the last, especially the *capsules*, which are of considerable size, much protruded, rich brown and glossy.

*** *Stems leafy. Leaves rounded or subcompressed and distinctly jointed internally. Panicle terminal. Flowers aggregated or fascicled.*

8. J. *acutiflórus* Ehrh. (*sharp-flowered jointed Rush*); leaves subcompressed, panicle very compound pyramidal, clusters 5—6-flowered, leaflets of the perianth unequal lanceolate very acute nearly as long as the narrow-ovate subacuminate capsule. *E. Bot.* t. 2143; *Ed. Cat.* p. 7. J. articulatus, *E. Bot.* t. 238.

Bogs, very common. *Fl.* June—Aug. ♃. — 1—2 feet high, erect. *Leaves* 3—4 on a stem, distinctly nodoso-articulate when dry. *Panicle* diffuse, in fruit spreading. *Flowers* several together, greenish-brown. *General bracteas* short, membranaceous, scarcely leafy. *Capsules* pale-coloured.

9. J. *lampocárpus* Ehrh. (*shining-fruited jointed Rush*); stem ascending and as well as the leaves compressed, panicle compound spreading, clusters 4—6- or 8-flowered, leaflets of the perianth equal rather obtuse shorter than the acute triquetrous oblong lanceolate capsule. *E. Bot.* t. 2143; *Ed. Cat.* p. 7. — β. panicles less branched, clusters of more numerous flowers. J. polycephalus *Don MSS.* J. nigritellus *Don: E. Bot. Suppl.* t. 2643; *Ed. Cat.* p. 7.

Boggy grounds and watery places, frequent. *Fl.* July, Aug. ♃.— Very similar to the last; but with larger *flowers*, and deep brown shining *capsules*. The *var.* β. has more numerous *flowers* in each cluster or head, sharper leaflets to the *perianth*, pale *capsules*, and it seems almost to unite *J. acutiflorus* with *J. lampocarpus*.

10. J. *obtusiflórus* Ehrh. (*blunt-flowered jointed Rush*); stem and leaves erect rounded, panicle very compound spreading and divaricated, clusters 3—6-flowered, leaflets of the perianth equal rather obtuse about equal in length with the oval trigonous capsule. *E. Bot.* t. 2144.

Wet pastures and marshes, not unfrequent. *Fl.* Aug. ♃. — Distinct as this species assuredly is, it has very frequently been confounded with the preceding ones of this division.

11. J. *uliginósus* Sibth. (*lesser Bog jointed Rush*); stem erect and often swollen at the base or decumbent and rooting, leaves bristle-shaped, panicle nearly simple irregular, clusters few or many-flowered, leaflets of the perianth equal oblong subacute nearly as long as the elliptical capsule. *E. Bot.* t. 801. J. bulbosus *L.* J. subverticillatus *Wulf.: Host Gram. Austr.* vol. iii. t. 88. J. supinus *Mœnch: Ed. Cat.* p. 7.

Boggy and swampy places, and often partly floating in shallow water. *Fl.* Aug. ♃. — This is indeed a highly variable plant, depending much for its appearance on soil and situation. In rather dry places it often rises erect, 3—4 inches high, having a bulbous or swollen base, and is then the original *J. bulbosus* L. At other times the *stems* are spreading or procumbent, when it becomes the *J. subverticillatus* of Wulfen. Again, these procumbent stems often take root at intervals, and are proliferous; or, when growing in water, they float upon the surface and spread their long flaccid branches in all directions. The ramifications and panicles are exceedingly irregular; the latter few-flowered. It is often extremely difficult to distinguish this from small varieties of *J. lampocarpus.*

**** *Stems leafy. Leaves plane or grooved above; not distinctly jointed.*

12. J. *castáneus* Sm. (*clustered Alpine Rush*); stem rounded, leaves hollow grooved above rounded at the back, heads of flowers generally single sessile or peduncled shorter than the bractea, capsules ovate bluntly trigonal nearly twice as long as the perianth. *E. Bot.* t. 90; *Ed. Cat.* p. 7.

Rare, on the elevated mountains of Breadalbane. Rocks at the head of Glen Callader, in Braemar: *Dr. Graham.* In the county of Durham. *Fl.* July. ♃. — "*Root* slightly creeping, with short runners or lateral shoots. *Stem* hollow. *Leaves* with the channelled side very thin and membranaceous; and within are found distant transverse partitions. Upper part of the leaf rounded and compressed. *Leaflets* of the *perianth* elliptic-lanceolate, acute and 3-ribbed. *Style* breaking off at a joint. *Capsule* shining, and as well as the perianth and inner bractea of a deep chocolate colour:" *W. Wilson.*

13. J. *trífidus* L. (*three-leaved Rush*); sheaths fringed those at the base of the stem leafless, bracteas resembling the setaceous solitary stem-leaf, heads of about three terminal flowers. *E. Bot.* t. 1482; *Ed. Cat.* p. 7.

Rocky places, on the Highland mountains of Scotland. *Fl.* July, Aug. ♃. — Very unlike any other British *Juncus*. *Root* creeping. Lower *sheaths* with at most a short awn, scarcely to be termed a leaf. A solitary *leaf* is on the stem, generally near the summit, 2—3 inches

long, linear-setaceous. *Bracteas* 2 under each head of 1—3 *flowers*. "*Capsule* not at all angular, but rounded-elliptical with a furrowed beak:" *W. Wilson.*

14. J. *compréssus* Jacq. (*round-fruited Rush*); stem erect compressed, leaves linear setaceous grooved, panicle terminal compound subcymbose generally shorter than the bracteas, capsules roundish ovate longer than the obtuse incurved leaflets of the perianth. *Bich. in Tr. of Linn. Soc.* v. xii. p. 307.—*β.* panicle nearly simple few-flowered longer than the bracteas. *Hook. Scot.* i. p. 107. J. Bothnicus *Wahl.* J. cænosus *Bich. in Linn. Trans.* vol. xii. p. 309, and *in E. Bot. Suppl.* t. 2680. J. Gerardi *Lois.: E. Bot. Suppl.* p. 7.

Wet marshy places, common.—*β.* In salt-marshes. *Fl.* Aug. ♃.—Having now seen various specimens both of the *J. cænosus* of Mr. Bicheno and *J. Bothnicus* of Wahlenberg, I feel confirmed in my opinion expressed in *Fl. Scotica*, that they are but varieties of *J. compressus.*

15. J. *ténuis* Willd. (*slender spreading Rush*); stem above shortly dichotomous panicled, leaves linear-setaceous grooved, flowers solitary approximate mostly sessile, capsules nearly spherical shorter than the very acuminated leaflets of the perianth. *Pursh, Fl. Am.* vol. i. p. 228; *Hook. Scot.* i. p. 108. J. gracilis, *E. Bot.* t. 1724. J. Gesneri, *E. Fl.* vol. ii. p. 167; *Ed. Cat.* p. 7.

Moist mountains of Clova: *D. Don. Fl.* July. ♃.—This rare British plant seems abundant in America, and I possess specimens likewise from various parts of Europe. It is allied to *J. bufonius*, yet really distinct. *Radical leaves* several; *stem* bare of leaves up to the division near the top, where is one leaf immediately beneath the foliaceous *bracteas.* In the axils of the forks are 2 or 3 large, nearly sessile *flowers*, and 2 or 3 unilateral ones on the branches. The *capsule* is very different from that of the following species.

16. J. *bufónius* L. (*Toad Rush*); stem dichotomous above panicled, leaves filiform setaceous grooved, flowers solitary unilateral mostly sessile, capsules elliptical ovate much shorter than the very acuminated leaflets of the perianth. *E. Bot.* t. 802.

Frequent in moist, or watery places, especially such as have been overflowed in winter. *Fl.* Aug. ☉.—4—6 inches high. *Leaves* few, slender, only one on the stem, generally near the middle. The divisions, or ramifications of the *stem*, as they are called, belong more properly, I think, to the panicle, at the base of which are foliaceous *bracteas.* Whole plant very pale-coloured. *Flowers* green, with white membranous margins to the *leaflets* of the *perianth.*

***** *Leaves all radical. Flowers terminal.*

17. J. *squarrósus* L. (*Heath Rush*); leaves setaceous (rigid) grooved, panicle terminal elongated compound, capsules elliptical ovate. *E. Bot.* t. 933; *Ed. Cat.* p. 7.

Moory and heathy ground, abundant. *Fl.* June, July. ♃.—Whole plant exceedingly rigid, 6 inches to a foot high. *Leaves* subsecund,

about half as long as the *scape*. *Bracteas* lanceolate, membranaceous. *Leaflets* of the *perianth* ovato-lanceolate, glossy brown with a pale line down the middle, scariose at the edges. *Capsule*, as in almost all this genus, tipped with a short mucro, the remains of the *style*, palish-brown.

18. J. *capitátus* Willd. (*capitate Rush*); leaves filiform (soft) plane or grooved above, heads of flowers sessile terminal shorter than the bracteas, leaflets of the perianth acuminate-aristate. *Hook. in E. Bot. Suppl.* t. 2644; *Ed. Cat.* p. 7. J. supinus *Bich.* J. ericetorum *DC.* β. γ., *Ed. Cat.* p. 7.

Jersey: *Mr. Hudson.* *Fl.* May, July. ⊙.—*Plant* 2—4 inches high, flaccid. *Leaves* entirely radical, about half the length of the *scape*, erect. *Heads* rather large, in proportion to the size of the plant, of 3—6 sessile *flowers*, occasionally proliferous. This species is well distinguished by the setaceous inclined *bractea* (with its sheathing membranaceous base), which is longer than the heads of flowers, and by the acuminate-aristate *perianth*.

19. J. *biglúmis* L. (*two-flowered Rush*); leaves linear-subulate compressed (not channelled) gradually dilated into the sheathing base, flowers 2, one of them pedicelled mostly shorter than the foliaceous involucre, capsule turbinate retuse rather longer than the obtuse leaflets of the perianth. *E. Bot.* t. 898; *Ed. Cat.* p. 7.

Boggy places on the Highland mountains: not unfrequent on the Breadalbane range, but rare in other parts of Scotland. *Fl.* July, Aug. ♃.—2—4 inches high; growing not in tufts, but scattered; and a much rarer species than the following, small specimens of which have often been mistaken for it. "*Leaves* with distant transverse partitions within, but not longitudinally divided:" *Mr. W. Wilson.*

20. J. *triglúmis* L. (*three-flowered Rush*); leaves linear-subulate channelled bitubular their sheaths auricled above, flowers mostly 3, generally as long as the membranaceous bractea, capsule elliptical acute longer than the rather obtuse leaflets of the perianth. *E. Bot.* t. 899; *Ed. Cat.* p. 7.

Boggy places among the mountains in the north of England, Wales, and especially the Highlands of Scotland. *Fl.* July, Aug. ♃.—Mr. W. Wilson has well studied, in living plants, the character of this and the preceding species of Rush. "*Stems*," he says, of this plant, "several from the same root, perfectly rounded, not channelled on one side, as in *J. biglumis*, naked above, and generally with 2, and sometimes 3 leaves near the base. *Leaves* with dilated *sheaths*, which are auricled at the top, setaceous, channelled, *bitubular*, with transverse partitions; *radical leaves* also setaceous, more slender and longer than in *J. biglumis*. Sometimes 4 *flowers* are found together, the additional ones placed lower down and separated from the rest. Outer *bractea* sometimes as large as in *J. biglumis*; each flower has one bractea at its base. *Cal.-leaves* more membranous than in the last, narrower and more acute. *Capsule* longer than the calyx, with a tapering, rather acute extremity, and with indistinctly furrowed sides; colour almost black." *W. Wilson.*

2. Lúzula *DeCand.* Wood-rush.

Perianth inferior, of 6 leaves, glumaceous. *Caps.* 1-celled, 3-valved; *valves* without dissepiments. *Seeds* 3, at the bottom of the cell. (*Leaves soft, plane, generally hairy*). — Name: the *Gramen Luzulæ* of Bauhin. *Luzula*, Smith tells us, is altered from *lucciola*, or *luzziola*, a *glow-worm;* because the heads of the flowers, wet with dew, and sparkling by moonlight, gave the elegant Italians an idea of those brilliant insects. Hence the learned author of the *English Flora* contends for *Luciola* as the proper orthography.

1. L. *sylvática* Bich. (*great hairy Wood-rush*); leaves hairy, panicle subcymose, peduncles elongated of about 3 flowers, leaflets of the perianth aristate as long as the capsule. *Ed. Cat.* p. 8. L. maxima *DC.* Juncus *Huds.: E. Bot.* t. 737. J. pilosus δ. *L.*

Woods, hilly places, and upon the mountains, frequent. *Fl.* May, June. ♃. — 1—1½ ft. high. *Leaves* broad, shining, striated. *Floral bracteas* ciliated. *Caps.* with a very sharp point, deep brown. *Seeds* elliptic-ovate, with scarcely any crested appendage on the top.

2. L. *pilósa* Willd. (*broad-leaved hairy Wood-rush*); leaves hairy, panicle subcymose, peduncles 1-flowered bent back, leaflets of the perianth acuminate rather shorter than the obtuse capsule. *Ed. Cat.* p. 8. Juncus *L.: E. Bot.* t. 736.

Woods, frequent. *Fl.* April, May. ♃. — Much smaller than the last, with the *flowers* standing singly on the *panicle*, dark brown. *Seeds* with a curved appendage at the top.

3. L. *Fórsteri* DC. (*narrow-leaved hairy Wood-rush*); leaves hairy, panicle subcymose but little branched, peduncles 1-flowered erect, leaflets of the perianth narrow acuminated a little longer than the acute capsule. *Hook. Scot.* i. p. 110; *Ed. Cat.* p. 8. Juncus, *E. Bot.* t. 1293.

Groves and thickets, especially on a calcareous or gravelly soil. (*E. Fl.*) More common in Surrey than *L. pilosa*. About Forfar, and banks of the Doune, Ayrshire: *Mr. Jas. Wilson*. *Fl.* May, June. ♃. — Much slenderer than the last in every part and taller. *Seed* with a large oblong crested appendage on the top.

4. L. *campéstris* Br. (*Field Wood-rush*); leaves hairy, spikes sessile and pedunculated, leaflets of the perianth acuminate longer than the obtuse capsule. *Ed. Cat.* p. 8. Juncus *L.: E. Bot.* t. 672.—β. taller, with the spikes of flowers collected into an almost orbicular head. *Ed. Cat.* p. 8. L. congesta *Lej.: E. Bot. Suppl.* t. 2718.

Woods and dry pastures, frequent; α. and β. growing together. *Fl.* April, May. ♃. — 4—6 or 8 inches, or even a foot or more high. *Flowers* collected into ovate or oblong, nearly erect *spikes*, of a reddish-brown colour, sometimes very pale. In β. the *spikes* are nearly all sessile. DeCandolle, whom Smith quotes as the authority for con-

sidering this a distinct species, himself now, in the *Bot. Gallicon*, makes it a *var.* of *campestris*. Indeed we find various intermediate states. Even the *L. Sudetica* of DC. will probably prove not permanently distinct from *campestris*.

5. L. *arcuáta* Hook. (*curved Mountain Wood-rush*); leaves channelled hairy, panicle subumbellate of few 3—5-flowered heads with long drooping peduncles, bracteas membranous fringed, capsule ovato-globose shorter than the broadly lanceolate leaflets of the perianth. *Hook. in Fl. Lond.* n. s. t. 153; *Ed. Cat.* p. 8.

On the barren stony summits of the great Cairngorum range of mountains. Upon Fonniven, a high mountain in Sutherland, and in Assynt: *Dr. Graham. Fl.* July. ♃.—The smallest of our *Luzulæ* and one of the rarest and most distinct. It comes nearer Mr. Brown's *L. hyperborea* than any other, but that wants the curved peduncles.

6. L. *spicáta* DC. (*spiked Mountain Wood-rush*); leaves somewhat channelled, spike solitary drooping compound, spikelets shorter than their subdiaphanous mucronated bracteas, leaflets of the perianth mucronate-aristate about as long as the rounded capsule. *Hook. Scot.* i. p. 111; *Ed. Cat.* p. 8. Juncus *L.: E. Bot.* t. 1176.

High mountains in the north of England, and more abundantly in Scotland. *Fl.* July. ♃.—6—8 inches high, slender. *Leaves* small, narrow, hairy only at the margins of the *sheaths*. *Spike* dark-coloured, interrupted near the base. *Capsule* very dark, shining brown, acute. Well distinguished by its drooping compound spike and narrow leaves.

3. Narthécium *Huds.* Bog-Asphodel.

Perianth inferior, petaloid, of 6 linear-lanceolate, spreading pieces. *Stam.* woolly. *Germen* pyramidal. *Caps.* 3-celled, 3-valved. *Seeds* with an appendage at each extremity. — Named from ναρθηξ, a *rod;* probably from the elongated straight raceme of flowers. It is remarkable that this word is an anagram of *Anthericum*, a genus with which Linnæus had united it.

1. N. *ossífragum* Huds. (*Lancashire Bog-Asphodel*); leaves linear uniform, pedicels with bracteas above the middle, stamens much shorter than the perianth. *E. Bot.* t. 535; *Ed. Cat.* p. 8.

Wet places, in moors and mountains, frequent. *Fl.* July, Aug. ♃.—6—8 inches high, decumbent at the base. *Roots* creeping. *Leaves* all radical, uniform, equitant, striated, about ½ as long as the *scape*, which has many scales or bracteas. *Stamens* considerably shorter than the *perianth*. *Seeds* with a very long *arillus* forming an appendage to each extremity, attached to a longitudinal receptacle on each valve: the *receptacles* form the dissepiments.

Div. II. *Ovary adnate with the tube of the perianth.* (Ord. XCIII—XCVII.)

Ord. XCIII. HYDROCHARIDEÆ.

Limb of the *perianth* 3—6-parted, the 3 inner segments peta-

loid. *Stamens* epigynous. *Ovary* 1. *Stigmas* 3, 1, or 6. *Berry* with one or more *cells*. *Embryo* straight, in a direction contrary to that of the *seed*, very rarely with a dilated base. — Aquatics. Leaves *radical, often floating, rarely rigid and submerged.* Flowers *white.*

1. Hydrócharis *Linn.* Frog-bit.

Flowers spathaceous. — *Barren fl. Cal.* in 3 deep segments. *Cor.* of 3 petals. *Stam.* 9, in 3 rows, within which are 3 imperfect *styles*. — *Fertile fl. Cal.* in 3 deep segments. *Pet.* 3. *Styles* 6, each with 2 *stigmas*. *Caps.* inferior, coriaceous, roundish, 6-celled, many-seeded. — Named from ὑδωρ, *water*, and χαρω, to *rejoice*; being aquatic plants.

1. H. *Mórsus Ránæ* L. (*common Frog-bit*); *E. Bot.* t. 808; *Ed. Cat.* p. 7.

Ditches and ponds in England and Ireland. Scarcely found in Scotland. *Fl.* July. ♃. — Floating, and sending down long *radicles* from the horizontal *stems*. *Leaves* petioled, reniform, entire. *Flowers* subumbellate, large, white, delicate, arising from pellucid membranous *spathas*.

2. Stratiótes *Linn.* Water-Soldier.

Spatha of 2 leaves. *Cal.* 3-cleft. *Cor.* of 3 petals. *Berry* inferior, angular, with 6 cells, many-seeded. — Named from στρατος, an *army*; on account of the numerous sword-like leaves.

1. S. *aloídes* L. (*Water-Soldier*); leaves sword-shaped triangular aculeato-serrate. *E. Bot.* t. 379; *Ed. Cat.* p. 13.

Lakes and ditches, particularly in the fenny parts of Norfolk and Lincolnshire. Rare in the north: planted in the Lochs of Duddingston, Forfar, and Cluny, Scotland. *Fl.* July. ♃. — A singular plant, with numerous *radical leaves* thrown up from creeping *runners*, which penetrate far into the mud. *Scape* 4—6 inches long, compressed, 2-edged. *Flowers* white, from a compressed 2-leaved *spatha*. Sometimes the *flowers* are dicœcious, and sometimes the *stamens* are on the same flower, with 5—6 cleft *styles*.

Ord. XCIV. ORCHIDEÆ.

Perianth of 6 segments in 2 rows, mostly coloured; one, the lowest one (so situated from the twisting of the ovary), different in form from the rest and often spurred. *Stamens* 3, united in a central column, the two lateral ones usually abortive, sometimes the central one (in *Cypripedium*). *Anther* often deciduous, 2—4—8-celled. *Pollen* powdery or frequently cohering in waxy masses. *Ovary* 1-celled, with 3 parietal receptacles. *Style* forming part of the column with the stamens. *Stigma* a viscid space in front of the column. *Capsule* (rarely a *berry*) 3-valved. *Seeds* numerous; *testa* loose, reticulated. *Albumen* 0.

— Herbaceous plants, *frequently, in the terrestrial species, with tuberous roots. Many tropical species are epiphytes.* Flowers *generally handsome, in spikes or racemes.* — The tubers of many species afford *Salep.* The fragrant *Vanilla* is the seed-vessel of *Vanilla aromatica.*

* *Pollen simple, or consisting of granules in a lax state of cohesion.* (Gen. 1—5.)

1. Goódyera *Br.* Goodyera.

The 2 lateral *calyx-leaves* including the gibbous base of the *lip,* which is entire at the extremity. *Column* free. *Pollen* angled. — Named in compliment to *Mr. John Goodyer,* a Hampshire botanist of the time of Gerarde.

1. G. *répens* Br. (*creeping Goodyera*); lower leaves ovate petiolate, calyx-leaves petals and lip ovato-lanceolate, root creeping. *Hook. in Fl. Lond.* n. s. t. 144; *Ed. Cat.* p. 6. Satyrium *L.: E. Bot.* t. 289.

Old fir forests in the north, and especially the N. Highlands of Scotland. *Fl.* Aug. ♃. — *Leaves* mostly radical. *Stem* a span high, bearing bracteiform *leaves. Flowers* small, white. *Column* very short. *Pollen-masses* broadly oval, composed of large granules, eventually fixed to the top of the *stigma* and falling away with a gland-like portion of it.

2. Neóttia *Jacq.* Lady's Tresses.

The 2 lateral *calyx-leaves* including the base of the beardless *lip. Column* wingless. *Pollen* farinaceous: *Br.* — Named from νεοττια, a *bird's nest;* formerly applied by Dodonæus, and even by Linnæus, to our *Listera Nidus-Avis,* on account of its densely tufted fibres; but subsequently abandoned. It has since been chosen by Jacquin for the present genus, and is sanctioned by the high authority of Swartz, Willdenow, Smith, and Brown. It is *Spiranthes* of Richard.

1. N. *spirális* Rich. (*fragrant Lady's Tresses*); root-leaves oblong subpetiolate, spike twisted unilateral, lip oblong. Ophrys *L.: E. Bot.* t. 541. Spiranthes autumnalis *Reich.: E. Bot.* p. 13.; *Ed. Cat.* p. 13.

Dry hilly pastures in various parts of England, in a chalky or gravelly soil. *Fl.* Aug. Sept. ♃. — *Tubers* 3—4 oblong. *Stem* 4—6 inches high, rather bracteated than leafy. *Flowers* singularly spiral on the stalk, greenish-white. Upper *calyx-leaf* and 2 *inner petals* combined. *Lip* longer than the rest of the flower, oblong, broader and crenate at the apex. *Stigma* and *anther* both acuminate.

2. N. *æstivális* DC. (*Summer Lady's Tresses*); tubers cylindrical long, radical leaves oblong-lanceolate, cauline narrowly lanceolate, spike lax twisted. *Bab. in E. Bot. Suppl.* t. 2817; *Ej. in Prim. Fl. Sarn.* p. 93. Spiranthes æstival. *Ed. Cat.* p. 13.

Marshy land by St. Ouen's pond, Jersey: *Messrs. Babington and*

Christy. Near Lyndhurst, in the New Forest, Hants: *Mr. Janson and Mr. Branch. Fl.* July, Aug. ♃. (*Bab.*)

3. N. *gemmípara* Sm. (*proliferous Lady's Tresses*); "leaves lanceolate as tall as the stalk, spike 3-ranked twisted, bracteas glabrous." *E. Fl.* vol. iv. p. 36; *E. Bot. Suppl.* t. 2786 (*bad*). Spiranthes gemmipara, *Ed. Cat.* p. 13.

Dunbog, Bear-Haven, Ireland: *Mr. J. Drummond. Fl.* Oct. ♃. — Nothing satisfactory is known of this.

3. Lístera *Br.* Bird's-nest or Twayblade.

Lip 2-lobed. *Column* wingless. *Anther* fixed by its base. *Pollen* farinaceous *Br.* — Named in honour of *Dr. Martin Lister*, an eminent British naturalist.

1. L. *ováta* Br. (*common Twayblade*); stem with only 2 ovate-elliptical opposite leaves, column of fructification with a crest in which the anther is placed. *Ed. Cat.* p. 8. Ophrys *L.*: *E. Bot.* t. 1548.

Woods and moist pastures, frequent. *Fl.* June. ♃. — One foot high. *Leaves* striated. *Flowers* distant upon the *spike*, yellowish-green. *Calyx-segments* ovate; two lateral *petals* linear-oblong; *lip* long, bifid, without any teeth at the base. *Bracteas* very short.

2. L. *cordáta* Br. (*Heart-leaved Twayblade*); stem with only 2 cordate opposite leaves, column without any crest, lip with a tooth on each side at the base. *Ed. Cat.* p. 8. Ophrys *L.*: *E. Bot.* t. 358.

Sides of mountains in heathy spots, in the north of England and Scotland. *Fl.* July, Aug. ♃. — *Root* a few long fleshy fibres. *Stems* 3—5 inches high. *Flowers* few, very small, spiked, greenish-brown. *Leaves* of the *perianth* somewhat spreading, those of the *calyx* ovate. Lateral *petals* linear-oblong; *lip* pendent, linear.

3. L. *Nidus-A'vis* Hook. (*common Bird's-nest*); stem with sheathing scales leafless, column without any crest, lip linear-oblong with 2 spreading lobes, toothless at the base. *Hook. in Fl. Lond.* n. s. t. 58; *Ed. Cat.* p. 8. Ophrys *L.*: *E. Bot.* t. 48.

Shady woods in many parts of England and Scotland. *Fl.* May, June. ♃. — *Root* of many, short, thick, densely aggregated, fleshy fibres. *Stem* 1 foot high. *Flowers* spiked, of a dingy brown. *Calyx-leaves* and lateral *petals* oblong-oval, nearly equal. Lobes of the *lip* spreading. — This can scarcely be generically distinguished from the preceding.

4. Epipáctis *Br.* Helleborine.

Lip very concave at the base, the extremity undivided or 3-lobed, the middle lobe large, and, as it were, jointed. *Pollen* farinaceous: *Br.* — Name given to some kind of *Hellebore* by the Greeks.

1. E. *latifólia* Sw. (*broad-leaved Helleborine*); leaves broadly ovate amplexicaul, perianth connivent, lower bracteas longer than the drooping flowers, lip 3-lobed, middle lobe roundish shortly acuminated. *Hook. in Fl. Lond.* n. s. t. 102; *Ed. Cat.*

p. 5. β. viridifl. *Reich.*: *Ed. Cat.* p. 5. Serapias *L.*: *E. Bot.* t. 269.

Woods in mountainous countries, not unfrequent. *Fl.* July, Aug. ♃. — *Root* creeping, with long fibres. *Stem* 1—3 ft. high; upper *leaves* lanceolate. *Flowers* in a very long, lax *spike*, greenish-purple, but varying much in intensity, sometimes dark purple, when it becomes the β. of *Sm.* and I fear his *E. purpurata* also.

2. E. *purpuráta* Sm. (*purple-leaved Helleborine*); "leaves ovato-lanceolate, bracteas linear all twice as long as the flowers, lip shorter than the calyx entire, germen downy." *E. Fl.* vol. iv. p. 42; *Forbes in E. Bot. Suppl.* t. 2775; *Ed. Cat.* p. 5.

Shady woods, Woburn Abbey: *Dr. Abbot, Mr. Forbes.* Reigate, Surrey; and Crawley, Sussex: *Mr. Luxford. Fl.* Aug. ♃.

3. E. *palústris* Sw. (*Marsh Helleborine*); leaves lanceolate, perianth patent, bracteas mostly shorter than the slightly drooping flowers, lip 3-lobed, middle lobe oval crenate retuse longer than the rest of the perianth. *Hook. in Fl. Lond.* n. s. t. 89; *Ed. Cat.* p. 5. Serapias *Scop.*: *E. Bot.* t. 270. S. longifolia *L.*

Moist and marshy places, especially in the vicinity of chalk. *Fl.* July. ♃. — *Stem* 1 foot high, purplish above. *Calyx* purple-green; lateral *petals* and *lip* white, with rose-coloured streaks at the base.

4. E. *grandiflóra* Sm. (*large white Helleborine*); leaves ovato-lanceolate sessile, bracteas much longer than the erect flowers, perianth patent, lip 3-lobed, middle lobe large oval retuse shorter than the rest of the perianth. E. pallens *Sw.*: *Hook. in Fl. Lond.* n. s. t. 76. Serapias grandiflora *L.*: *E. Bot.* t. 271. Cephalanthera grandifl. *Ed. Cat.* p. 3.

Woods and thickets, chiefly in a chalky soil. *Fl.* June. ♃. — *Stem* a foot or more high. *Cal.-leaves* and *petals* nearly equal, large, oblong-ovate, white, concave, including the small *lip* which is also white, but yellowish within. *Column* of fructification in this and the following species very long: in the preceding ones very short.

5. E. *ensifólia* Sw. (*narrow-leaved white Helleborine*); leaves lanceolate much acuminated subdistichous, bracteas very minute subulate, flowers erect, lip 3-lobed, middle lobe large roundish obtuse much shorter than the rest of the perianth. *Hook. in Fl. Lond.* n. s. t. 77. Serapias *L.*: *E. Bot.* t. 494. Cephalanthera ensifol. *Ed. Cat.* p. 3.

Mountainous woods; but not general. *Fl.* May, June. ♃.

6. E. *rúbra* Sw. (*purple Helleborine*); leaves lanceolate, bracteas longer than the downy germen, perianth spreading, lip with its middle lobe acuminate marked with raised wavy lines. Serapias *L.*: *E. Bot.* t. 437. Cephalanthera rubra, *Ed. Cat.* p. 3.

Rare in mountainous woods, in England. *Fl.* May, June. ♃. — *Calyx* and inner *petals* purplish-red. *Lip* almost white.

5. Corallorhíza *Hall.* Coral-root.

Lip produced at the base; its *spur* adnate with the germen,

or free. *Column* free. *Pollen-masses* 4, oblique, not parallel *Br.*—Name: κοραλλιον, *coral*, and ῥιζα, a *root*; from the curious structure of the root.

1. C. *innáta* Br. (*spurless Coral-root*); spur very short adnate. *Hook. in Fl. Lond.* n. s. t. 142; *Ed. Cat.* p. 4. Ophrys corallorhiza *L.*: *E. Bot.* t. 1547.

Marshy woods in several parts of Scotland. Woods near Culross: *Dr. Dewar. Fl.* July. ♃. — *Root* of thick, interwoven, fleshy fibres. *Stem* 6—12 inches high, greenish-white, with 2—3 lanceolate, acute, sheathing *scales*, rather than *leaves*. *Flowers* 6—8, in a short lax *spike*, pale yellowish-green. *Calyx-leaves* linear-lanceolate, keeled, spreading; 2 lateral *petals* shorter than the *calyx*, erecto-connivent. *Lip* oblong, white, nearly entire, waved at the margin, with a few purple blotches, deflexed. *Column* elongated.

** *Pollen cohering in granules, which finally become waxy and are indefinite in number.* (Gen. 6—11.)

6. O'RCHIS *Linn.* Orchis.

Lip spurred. *Glands* of the stalks of the *pollen-masses* contained in a common little pouch. — Name: an ancient appellation of the plant.

* *Tubers* 2, *undivided.*

1. O. *Mório* L. (*green-winged Meadow Orchis*); lip 3-lobed somewhat crenate the middle lobe emarginate, calyx-leaves ascending ribbed connivent enclosing the two lateral petals, spur ascending blunt rather shorter than the germen. *E. Bot.* t. 2059; *Ed. Cat.* p. 9.

Meadows and pastures, England. *Fl.* June. ♃. — *Stem* from a span to a foot high. *Flowers* few, in a lax *spike*. *Calyx* purplish-green, forming a sort of helmet over the rest of the flower. *Lip* purple, pale in the middle, with purple spots.

2. O. *laxiflóra* Lam. (*lax-flowered Orchis*); lip 3-lobed the lateral lobes rounded in front crenulated longer than the truncated slightly emarginate intermediate one, spur cylindrical emarginate much shorter than the germen, lateral sepals reflexed, upper petals connivent, tubers undivided. *Bab. in E. Bot. Suppl.* t. 2828; *E. Bot. Suppl.* t. 9.

Wet meadows and bogs, Jersey and Guernsey: *Mr. Babington. Fl.* June. ♃. — "Allied to *O. Morio*, but that plant has single-nerved bracteas, and all the segments of its perianth except the lip connivent. The short spur is also a valuable distinctive character." *Bab.*

3. O. *máscula* L. (*early purple Orchis*); lip 3-lobed somewhat crenate the middle lobe emarginate, two lateral calyx-leaves reflexed upwards, spur obtuse rather longer than the germen. *E. Bot.* t. 631; *Ed. Cat.* p. 9.

Woods and pastures, frequent. *Fl.* June. ♃. — *Stem* 1 foot high. *Leaves* generally marked with dark purple spots. *Flowers* in a lax ob-

long *spike*, purple, sometimes fragrant; the centre of the *lip* whitish at the base and spotted, sometimes altogether white.

4. O. *ustuláta* L. (*dwarf dark-winged Orchis*); lip 3-partite marked with discoloured raised spots, segments narrow the middle one bifid, calyx-leaves connivent acute including the two lateral petals, spur very short, bracteas as long as the germen. *E. Bot.* t. 18; *Ed. Cat.* p. 9.

Dry chalky pastures, in England. *Fl.* June. ♃. — 4—5 inches high. *Lip* white, with purple, raised, not rough, spots, while the rest of the flower is a dark dingy purple. *Cal.* forming a sharp helmet-like covering, within which are the two small linear lateral *petals*. *Leaves* lanceolate, acute.

5. O. *fúsca* Jacq. (*great brown-winged Orchis*); lip deeply 3-lobed with raised rough dark points, lateral lobes linear-oblong, intermediate one large obcordate crenate and emarginate with a point in the sinus, calyx-leaves rather obtuse connivent including the two lateral petals, spur obtuse about half as long as the germen. *Ed. Cat.* p. 9. O. militaris, *E. Bot.* t. 16.

Chalky pastures and borders of woods, in Kent. *Fl.* May. ♃. — *Stem* 1—2 feet high. *Leaves* ovate-oblong, obtuse. *Flowers* forming a handsome *spike*, with variegated purple *petals*; the *helmet* of a dark greenish-purple, the *lip* much paler.

6. O. *militáris* L. (*Military Orchis*); lip deeply 3-lobed with raised rough dark points, the two lateral lobes linear-oblong short, middle lobe dilated at the extremity and deeply emarginate with an intermediate point, calyx-leaves converging acuminate including the 2 lateral petals, spur obtuse about half as long as the germen. *Bicheno in E. Bot. Suppl.* t. 2675; *Ed. Cat.* p. 9.

Chalky hills, principally about Reading, on both sides of the Thames. *Fl.* May. ♃. — Intermediate, in the structure of its *flowers*, between the preceding and the following; but most allied to the former. *Helmet* pale ash-colour. *Lip* deep purple, white in the middle. *Leaves* oblong, rather acute.

7. O. *mácra* Lindl. (*Monkey Orchis*); lip 3-partite with small rough crystalline points the segments linear, intermediate one deeply bifid with a point in the sinus, calyx-leaves acuminate connivent including the two lateral petals, spur half as long as the germen, bracteas very small. *Lindl. Syn. Br. Fl.* p. 260; *Ed. Cat.* p. 9. O. tephrosanthos *Bichen. in Linn. Trans.* v. xii. p. 33 (not *Vill.*) *Hook. in Fl. Lond.* n. s. t. 82. O. militaris *β.*, *E. Bot.* t. 1873. *ε. Linn. ?*

Chalk hills in Berks, Oxfordshire and Kent. *Fl.* May. ♃. — This beautiful and curious sp. Dr. Lindley considers to be quite distinct from *O. tephrosanthos*, with which it had been confounded, and peculiar to Britain. It is smaller and more slender than the last. *Spike* short. *Flowers* pale purple, spotted. Segments of the *lip* narrow, deep purple, covered with minute straight crystalline warts. Among specimens communicated to me by Mr. Bicheno, were some monstrous flowers, each having 2 opposite horizontal *lips*, two spurs, and only 2 opposite *calyx-leaves*.

8. O. *hircína* Scop. (*Lizard Orchis*); lip 3-partite waved at the base, segments linear, intermediate one twisted very long bifid, calyx-leaves concavo-connivent including the small lateral linear petals, spur very short. *Ed. Cat.* p. 9. Satyrium *L.*: *E. Bot.* t. 24.

Chalk hills and bushy places, in Kent and Surrey. *Fl.* July. ♃. — A most remarkable plant, which cannot be confounded with any other. The smell of its *flowers* is detestable, and similar to that of a *goat*, whence its Latin specific name.

9. O. *pyramidális* L. (*pyramidal Orchis*); lip with 3 equal entire lobes and 2 protuberances at the base above, calyx-leaves spreading acuminate, spur subulato-filiform longer than the germen, stalks of the pollen-masses united by one gland. *E. Bot.* t. 110; *Ed. Cat.* p. 9. Anacamptis *Bich.*

Pastures and waste ground, England, in a chalky or clayey soil. Isle of Colonsay, and in Fifeshire, Scotland. *Fl.* July. ♃. — *Leaves* very acuminate. *Flowers* of a delicate rose-purple, sometimes white, spirally arranged in a close, broad, and ovate spike.

** *Tubers* 2, *palmated.*

10. O. *latifólia* L. (*Marsh Orchis*); lip indistinctly 3-lobed its sides slightly reflexed crenate, calyx-leaves patent, 2 lateral petals connivent, spur cylindrical shorter than the germen, bracteas longer than the flower. *E. Bot.* t. 2308; *Ed. Cat.* p. 9.

Marshes and moist meadows, common. *Fl.* June. ♃. — *Flowers* varying from a pale rose-colour to deep purple, the *lip* dotted and marked with purple lines; *white* on the sands of Barrie, near Dundee: *Mr. Drummond.* The species is known by its slightly lobed *lip*, its broad, nearly erect, and acuminated *leaves*, and, especially, by the *bracteas*, which are leafy and longer than the *germen.*

11. O. *maculáta* L. (*spotted palmate Orchis*); lip plane 3-lobed sometimes obscurely so, calyx-leaves spreading, 2 lateral petals connivent, spur cylindrical shorter than, and bracteas as long as, the germen. *E. Bot.* t. 632; *Ed. Cat.* p. 9.

Pastures and heaths, frequent. *Fl.* June, July. ♃. — A foot high, slender. *Leaves* distant, spotted with purple. *Flowers* white or pale purple, more or less spotted and streaked, especially the *lip*. Its generally deeply lobed *lip* having the central lobe the longest and ovate, together with the small subulate *bracteas*, constitute in themselves sufficient marks of distinction between this and *O. latifolia.*

7. Gymnadénia *Br.* Gymnadenia.

Glands of the stalks of the *pollen-masses* naked, approximated. — Named from γυμνος, *naked*, and αδην, a *gland*; one of the essential characters of this genus.

1. G. *conópsea* Br. (*fragrant Gymnadenia.*) *Ed. Cat.* p. 6 Orchis *L.*: *E. Bot.* t. 10.

Dry pastures and heaths, in mountainous or hilly countries, especially

in Scotland, most abundant: scenting the atmosphere with its fragrance. *Fl.* June—Aug. ♃. — *Stem* 1 foot high. *Tubers* palmate. *Leaves* linear-lanceolate, keeled. *Flowers* in an ovate-oblong, rather dense *spike*, rose-purple. *Lip* 3-lobed, not spotted, the lobes equal, entire, rounded: the 2 lateral *calyx-leaves* spreading, their margins revolute; 2 lateral *petals* connivent. *Spur* filiform, twice as long as the *germen*. The 2 *cells* of the *anthers* are perforated at the base, through which the naked, large and oblong *glands* of the *stalks* of the *pollen-masses* appear. — This genus is near the following in character, but differs in habit.

8. Habenária *Br.* Habenaria.

Lip spurred. *Glands* of the stalks of the *pollen-masses* naked, distant. — Named from *habena*, a *thong* or *lash*, which the spur sometimes resembles.

1. H. *víridis* Br. (*green Habenaria*); spur very short 2-lobed, lip linear bifid with an intermediate tooth, bracteas much longer than the flowers, tubers palmate. *Ed. Cat.* p. 6. Satyrium *L.*: *E. Bot.* t. 94.

Dry hilly pastures, not unfrequent. *Fl.* June, July. ♃. — *Stem* 6—8 inches high; lower *leaves* nearly ovate, obtuse; *calyx* and lateral *petals* connivent and forming a helmet, green. *Lip* small, greenish-brown.

2. H. *álbida* Br. (*small white Habenaria*); spur obtuse much shorter than the germen, lip 3-cleft the segments acute, middle one the longest, calyx-leaves and lateral petals nearly equal ovate concave. Satyrium *L.*: *E. Bot.* t. 505. Gymnadenia albida, *Ed. Cat.* p. 6.

Mountain pastures, not unfrequent. *Fl.* June, July. ♃. — About a span high. *Leaves* oblong, striated, lower ones obtuse. *Flowers* white, small, fragrant; *lip* scarcely longer than the *calyx*, deflexed.

3. H. *bifólia* Br. (*Butterfly Habenaria*); spur filiform twice as long as the lanceolate entire obtuse lip, radical leaves 2 oblong-obovate attenuated at the base. *Ed. Cat.* p. 6. — *α.* anther-cells nearly parallel. Orchis bif. *L.* Platanthera bif. *Lindl.* (not of *Reich.?*) Habenaria bif. *Bab. in Linn. Trans.* v. viii. p. 463. Platanthera brachyglossa *Reich.* — *β.* anther-cells considerably diverging at the base. Orchis bif., *E. Bot.* f. 22. Habenaria bif. *Hook. in Fl. Lond. N. S. cum Ic.* Platanthera chlorantha *Lindl.* (scarcely of *Reich.*): *Ed. Cat.* p. 6. Habenaria chlorantha *Bab. l. c.*

Moist copses, pastures and dry heaths, frequent. *Fl.* June. ♃. — Reichenbach, in his *Iconogr. Bot.* t. 851, 852, and 853, figures 3 states of this plant; differing, besides in other minor points, 1. in the anther-cells being close and parallel (his *Platanthera bifolia*): 2. in the anther-cells moderately diverging at the base, and there having a curvature upward (*P. brachyglossa* Wallr.): 3. with the anther-cells remarkably diverging at the base, and there having a curvature downward (*P. chlorantha* Cuss.). The botanists who have particularly studied our British species, are Dr Lindley and Mr. Babington. The former refers the *bifolia* and *brachyglossa* Reich. to the real *bifolia* L. The latter

considers the *brachyglossa* alone to be the Linnæan *bifolia*, and the *bifolia* of Reich. to be a new species. With regard to *chlorantha*, this has now been very generally adopted as a species, and the *bifolia* of *E. Bot.* and of *Fl. Lond.* unhesitatingly referred to it. Yet whoever will be at the trouble of comparing these figures, may see at once that the *chlorantha* of Reich. is as different from that of Smith and Curtis, as the *brachyglossa* is from them. In short, that the true *chlorantha* is an extreme state, with unusually diverging anther-cases, flowers as green as the leaves, and quite sharp petals; such as, I confess, I have not seen in this country. If, then, it be right to make three species out of the Linnæan *bifolia*, we must, to be consistent, make four. I think it more in accordance with what we know of the liability to vary in the flowers of the *Orchideæ*, to consider all four as forms of one and the same species.

9. A'CERAS *Br.* Man-Orchis.

Lip without a spur. *Glands* of the stalks of the *pollen-masses* contained in a common little pouch. — Name: α, *without*, and κερας, a *horn*; in allusion to the absence of a spur.

1. A. *anthropóphora* Br. (*green Man-Orchis*); lip longer than the germen. *Ed. Cat.* p. 1. Ophrys *L.*: *E. Bot.* t. 29.

Dry chalky or clayey pastures in Surrey, Kent, Norfolk, and Suffolk. *Fl.* June. ♃. — *Tubers* ovate. *Stem* about a foot high. *Flowers* in a long *spike*. *Lip* tripartite, with linear segments, yellowish, with a red or brown margin, the middle lobe rather broad, deeply bifid. *Helmet* green, composed of the 3 connivent, concave *calyx-leaves*, including the 2 small, linear-lanceolate, obtuse, lateral *petals*. Mr. Wilson has observed a monstrous state with the *petals* partly changed into anthers, one edge becoming pouched, sometimes both containing masses of pollen: at variance with Dr. Lindley, v. Introduct. to the Nat. System.

10. HERMÍNIUM *Br.* Musk-Orchis.

Lip without a spur. *Glands* of the stalks of the *pollen-masses* naked, distinct. — Name, probably derived from ἑρμιν, ἑρμινος, *fulcrum tori*, in allusion either to the thick, though short, column of the flower, or to the stem or scape of the flowers.

1. H. *monórchis* Br. (*green Musk-Orchis*); radical leaves 2 lanceolate. *Hook. in Fl. Lond. N. S.* t. 138; *Ed. Cat.* p. 6. Ophrys *L.*: *E. Bot.* t. 71.

Chalky pastures, principally in the east and south-east of England. *Fl.* June, July. ♃. — *Tubers* 2, very unequal. *Plant* 4—6 inches high, slender; with two lanceolate-oblong *leaves* at the base, and a small one on the *stem* or *scape*. *Flowers* small, green. *Perianth* bent down from the top of the erect *germen*. *Cal.* of 3 equal, ovate *leaves*, shorter than the *corolla*. Lateral *petals* ovate, acuminate, undivided; lower one or *lip*, 3-fid, the two side-lobes rather small, intermediate one much longer, linear. *Pollen-mass* on a short footstalk, with a large white gland.

11. O'PHRYS *Linn.* Ophrys.

Lip without a spur. *Glands* of the stalks of the *pollen-masses*

each in a distinct little pouch. — Name: ὀφρυς, the *eye-brow*, which Pliny says this plant was used to blacken. The flowers of all the species are beautiful and curious, and more or less aptly resemble certain insects.

1. O. *apífera* Huds. (*Bee Ophrys*); lip tumid trifid and reflexed at the extremity, the intermediate lobe trifid, its middle segment longest subulate, anther elongated with a hooked point. *E. Bot.* t. 65; *Ed. Cat.* p. 9. O. insectifera *a. L.*

Chalky and clayey soils in various parts of England, in pastures and pits. *Fl.* July. ♃. — *Flowers* large. *Calyx* purplish or greenish-white: lateral *petals* oblong, very small, of the same colour. *Lip* velvety or silky, of a rich brown variegated with yellow.

2. O. *arachnites* Willd. (*late Spider Ophrys*); "lip longer than the calyx dilated somewhat tumid with 5 shallow inflexed marginal lobes, the terminal one flattened, calyx coloured, column (anther) with a hooked point, petals deltoid downy." *E. Fl.* v. iv. p. 273; *G. E. Smith in E. Bot. Suppl.* t. 2596; *Ed. Cat.* p. 9.

Chalky downs of South Kent, between Folkstone and Sittingbourne *Fl.* May, June. ♃. — I am indebted to Mr. Winterbottom for authentic specimens of this, so well dried as to be beautifully expressive of the essential characters of the species. The Rev. G. E. Smith speaks of it as allied to *O. apifera*, "with which, and probably *O. fucifera*, it forms frequent hybrids. The essential distinctions are to be sought in the position of the lobe at the base (extremity?) of the lower *lip*, which is never recurved; in the more or less deltoid form of the purplish or green *petals*; in the more bent and short, as well as paler *calyx-leaves*; and in the proportion borne to them by the *lip*, which is either equal or longer, and which presents in the true plant a nearly entire margin, and a more obvious shade of green in the various lines and spots upon its dull or intensely brown disk."

3. O. *aranífera* Huds. (*Spider Ophrys*); lip tumid clothed with short dense hairs 3-lobed, middle lobe large emarginate, anther acute. *E. Bot.* t. 65; *Ed. Cat.* p. 9. — β. lip obovate undivided with a spreading wavy margin. *Ed. Cat.* p. 9. O. fucifera *Sm.*: *E. Fl.* v. iv. p. 32; *G. E. Smith in E. Bot. Suppl.* t. 2649.

Chalky and clayey pastures and pits. — β. Kent. *Fl.* Apr. May. ♃. — *Lip* shorter and broader than in *O. apifera*; its colour deep brown, with paler lines not unfrequently resembling the Greek letter π. *Calyx* green. Mr. G. E. Smith is now satisfied that *O. fucifera* is only a var. of the present.

4. O. *muscífera* Huds. (*Fly Ophrys*); lip oblong 3-fid middle segment larger 2-lobed, lateral petals filiform, anther short obtuse. *E. Bot.* t. 64; *Ed. Cat.* p. 9.

Chalky and clayey pastures in England; abundant in many parts of Norfolk, Suffolk, Surrey, and Kent. *Fl.* June. ♃. — Well distinguished from all the preceding, by its very slender, lateral *petals*, which resemble the antennæ of an insect, and by its narrow *lip*, 2-lobed at the extremity, and having a broad pale bluish spot in its centre.

**** Pollen cohering in grains, which finally become waxy and are definite in number.*

12. Maláxis *Sw.* Bog-Orchis.

Lip without a spur, very small, superior, undivided: 2 lateral *petals* reflexed, smaller than the *calyx-leaves*. *Column* very short. *Pollen-masses* in 2 pairs.—Name: μαλακις, *softness*, from the tender nature of the plant.

1. M. *paludósa* Sw. (*Marsh Bog-Orchis*); leaves 4—5 oval very concave papillose at the extremity[1], lip concave acute, *E. Bot.* t. 72; *Hook. in Fl. Lond. N. S.* t. 197; *Ed. Cat.* p. 8. Ophrys *L.*

Spongy bogs, in many places, but often overlooked on account of its small size. Frequent in the vallies of Clova: *Dr. Graham. Fl.* Aug. Sept. ♃.—*Stem* 2—4 inches high. *Flowers* erect, minute, in a small greenish *spike*. *Calyx* of 3, ovate, horizontally spreading *leaves*, two of them erect, their bases embracing the base of the superior *lip* which is thus also erect. Two lateral *petals* recurved.

13. Líparis *Rich.* Liparis.

Perianth spreading, uniform, with linear segments. *Lip* inferior, undivided, reflexed. *Column* elongated. *Pollen-masses* in 2 pairs.—Named from λιπαρος, *fat*, or unctuous to the touch.

1. L. *Loesélii* Rich. (*two-leaved Liparis*); leaves 2 broadly lanceolate, scape trigonal, lip entire longer than the perianth. Malaxis *Sw.* Ophrys *L.: E. Bot.* t. 47. Sturmia Loeselii *Reich.: Ed. Cat.* p. 13.

Sandy bogs, in Norfolk, Suffolk, and Cambridgeshire. *Fl.* July. ♃. 6—8 inches high. *Flowers* few, in a lax *spike*, yellowish-green; in their general structure very similar to those of the tropical and parasitical *L. foliosa*, Bot. Mag. t. 2709.

***** Lateral anthers fertile, the middle one sterile and petaloid.*

Cypripédium *Linn.* Lady's Slipper.

Lip large, inflated. *Column* with a large terminal, dilated lobe (or sterile *stamen*) separating the 2 anthers. Two lateral or lower *calyx-leaves* often combined.—Named from Κυπρις, *Venus*, and ποδιον, a *slipper*; i. e. *Venus' slipper*.

1. C. *Calcéolus* L. (*common Lady's Slipper*); stem leafy, terminal lobe of the column nearly oval, lip shorter than the

[1] These papillæ the Rev. Professor Henslow has clearly ascertained to be little bulbous *gemmæ*, and as such has described and figured them in the *Mag. of Nat. Hist.* v. i. p. 442.; a fact suspected previously, in 1824, by Mr. W. Wilson, who further finds an *hybernaculum* formed in the autumn among the decayed leaves. Thus, independent of *seeds*, this curious little plant has one mode of perpetuating itself, and another of increase.

calyx somewhat laterally compressed. *E. Bot.* t. 1; *Ed. Cat.* p. 4.

Woods in the north of England, but rare. *Fl.* June. ♃. — One of the most beautiful and interesting of our native plants.

Ord. XCV. IRIDEÆ.

Limb of the *perianth* 6-cleft, or 6-partite; sometimes irregular. *Stamens* 3, inserted into the base of the outer segments. *Filaments* sometimes united. *Anthers* fixed by their base, turned outwards. *Ovary* 3-celled, many-seeded. *Style* 1. *Stigmas* 3, lamellated, or dilated into the form of petals, rarely 2-lipped; sometimes 1. *Stigma* obscurely 3-lobed. *Capsule* 3-celled, 3-valved; valves bearing the dissepiments in the middle. *Seeds* round, hard. *Albumen* horny or firmly fleshy. *Embryo* with the same direction as the seed. — Herbs, *rarely* under-shrubs. Leaves *equitant* (*except in* Crocus). Flowers *spathaceous, sometimes partly subterranean.* — *Orris-root* is from *Iris Florentina.*

1. Iris *Linn.* Iris or Flower de Luce.

Perianth single, petaloid, 6-cleft, each alternate segment longer and reflexed. *Stam.* 3. *Stigmas* 3, petaloid, covering the stamens. — Named from the beautiful and varied colours of its flowers.

1. I. *Pseud-ácorus* L. (*yellow Water Iris* or *Corn-flag*); leaves sword-shaped, perianth beardless its inner segments smaller than the stigmas. *E. Bot.* t. 578; *Ed. Cat.* p. 7. — *β. citrina*; flowers smaller, segments of the perianth narrower, the inner ones more acute, stem taller. *Bot. Mag.* t. 2239; *Ed. Cat.* p. 7.

Watery places, wet meadows and in woods, frequent. — *β.* found in Ayrshire by *Mr. James Smith* of Ayr. *Fl.* June, July. ♃. — *Flowers* large, deep yellow in *α.*, much paler in *β.* *Root* large, horizontal, very acrid. A piece of it held between the teeth is said to cure the tooth-ache, and is otherwise used medicinally; also for giving a black dye, and making ink. The *seeds*, when roasted, are recommended as a substitute for coffee.

2. I. *fœtidíssima* L. (*stinking Iris*); leaves sword-shaped, perianth beardless its inner segments spreading about as large as the stigmas, stem one-angled. *E. Bot.* t. 596; *E. Fl.* v. i. p. 49; *Ed. Cat.* p. 7.

Woods, thickets and pastures; frequent in the southern and western parts of England, rare in the middle and northern counties: not known in a wild state in Scotland. *Fl.* May. ♃. — *Flowers* much smaller than the last, dull livid purple. The *leaves*, when bruised, yield a very disagreeable smell, which some have, however, compared to roast-beef, whence its common English name, *Roast-beef plant.* In Devonshire it

is so frequent, that you can hardly avoid walking among it when herborising, and being annoyed by the smell.

(It is much to be regretted that our Flora is now encumbered with the *Iris tuberosa* L. (E. Bot. Suppl. and Ed. Cat. p. 7.), a native of "the Levant and other countries bordering on the Mediterranean, formerly cultivated for its medicinal properties," and a well-known inhabitant of our gardens. Mr. Borrer has seen the plant in two of Mr. Penwick's five stations, and assures us that "they are very near farm-houses.")

2. Trichonéma *Ker.* Trichonema.

Perianth single, petaloid, in 6 deep, equal segments, *tube* shorter than the *limb*. *Stam.* 3. *Filaments* hairy. *Stigma* bipartite, slender. *Seeds* globose.— Named from θριξ, a *hair*, and νημα, a *filament*.

1. T. *Colúmnæ* Reich. (*Columna's Trichonema*); scape single-flowered mostly solitary slightly drooping, leaves filiform compressed furrowed flexuose, spathas longer than the tube of the corolla, style shorter than the stamens, stigmas bifid at the apex. *Ed. Cat.* p. 14. Romulea Columnæ *Mauri Fl. Rom.* p. 18. Trichonema Bulbocodium *Sm.: E. Fl.* v. 1. p. 48. (excl. most of the syn.) Ixia Bulbocodium, *E. Bot.* t. 2549 (not of *Linn.?*): *Redout. Lil.* t. 88. f. A. I. Bulbocodium *var.* β. *Tenor.* Sisyrinchium Theophrasti, *Column. Ecphr.* i. p. 327.

Grassy pastures in Guernsey and Jersey. The Warren, Dawlish, March, 1834: *Mr. Trevelyan. Fl.* March, Apr. ♃.—A small bulbous plant, with pale bluish-purple and yellow *flowers*. Mauri appears to have well distinguished the two European species of this genus.

3. Crócus *Linn.* Crocus.

Perianth single, coloured; *tube* very long; *limb* cut into 6 equal segments. *Stam.* 3. *Stigma* 3-lobed, plaited.— Named from κροκη, a *thread* or filament, from the appearance of the *saffron* of the shops, which is the dried stigmas of *Crocus sativus*.

1. *C. *satívus* L. (*Saffron Crocus*); stigma in three deep linear divisions protruded drooping. *E. Bot.* t. 343. (C. autumnalis); *E. Fl.* v. i. p. 46; *Ed. Cat.* p. 4.

Meadows; as about Saffron-Walden in Essex, where it is cultivated for the sake of its fragrant *stigmas*, which constitute *saffron*. *Fl.* Sept. ♃.

2. *C. *vérnus* Willd. (*purple Spring Crocus*); stigma within the flower erect cut into 3 jagged wedge-shaped lobes. *E. Bot.* t. 344; *Ed. Cat.* p. 4. C. sativus β. *L.*

Meadows and fields. Plentiful about Nottingham. *Fl.* March. ♃.

3. *C. *mínimus* Red. (*least purple Crocus*); stigmas erect, longer than the stamens included in the solitary flower, leaves linear filiform, bulb with a membranous coat. *Red. Pl. Lil.*

v. ii. t. 81 ; *Hook. in Bot. Mag.* t. 2991 ; *Ed. Cat.* p. 4. C. præcox *Haw. in E. Bot. Suppl.* t. 2645. C. reticulatus, *E. Fl.* v. iv. p. 262. (not *Bieb.*)

In Sir H. Bunbury's park at Barton, Suffolk. *Fl.* March. ♃.

4. *C. *aúreus* Sm. (*golden Crocus*) ; 2-flowered, stamens longer than the stigma, segments of the corolla oblong incurvo-patent, bulb coated with compact fibres. *Fl. Græc.* v. i. p. 25. t. 35 ; *Hook. in Bot. Mag.* t. 2986 ; *Haw. in E. Bot. Suppl.* t. 2646 ; *Ed. Cat.* p. 4.

With the preceding, and equally the outcast of gardens. *Fl.* March. ♃. — This Mr. Borrer considers not specifically distinct from *C. mæsiacus* Gawl. (*C. vernus* Curtis in *Bot. Mag.*)

5. *C. *nudiflórus* Sm. (*naked-flowering Crocus*) ; stigma within the flower erect in 3 deeply laciniated tufted segments equal in height with the stamens, flowers appearing before the leaves. *E. Bot.* t. 491 ; *Ed. Cat.* p. 4.

Between Nottingham Castle and the Trent. *Fl.* Oct. ♃.—*Flowers* pale purple. I possess specimens from the station now mentioned, sent by Dr. Jowitt, which precisely accord with the plant of *E. Bot.*

6. *C. *speciósus* M. Bieb. (*showy autumnal Crocus*) ; stigma within the flower erect in 3 deeply laciniated segments longer than the stamens, flowers appearing before the leaves. "*M. Bieb. Casp.* 129." *Wils. in E. Bot. Suppl.* t. 2752 (not *Reich.*) ; *Ed. Cat.* p. 4.

Meadows near Warwick : *Dr. Lloyd.* Meadow about Warrington : *Mr. W. Wilson ;* and about Halifax. (*Hook. Herb.*) *Fl.* Oct. ♃. — I mentioned the discovery of this plant in the 2d ed. of this Flora, but did not venture to add another to the already too greatly extended list of species of this Genus : all that can be said in favour of its introduction is, that it is as much entitled to a place in our Flora as the preceding species.

(In all this Genus the germen is concealed under-ground, elevated by a short peduncle from the root ; which peduncle elongates, after the decay of the flower, and the capsules appear above-ground.)

Ord. XCVI. AMARYLLIDEÆ.

Limb of the *perianth* coloured, 6-partite or 6-cleft. *Stamens* 6, inserted at the bottom of the segments, sometimes united by a membrane. *Anthers* opening inwards. *Ovary* 3-celled ; the cells many-seeded, or in those whose fruit is fleshy, 1—2-seeded. *Style* 1. *Stigma* 3-lobed. *Fruit* capsular ; either dry with 3 valves, 3 cells, bearing the dissepiments in the middle and many *seeds :* or fleshy with 1—3 *seeds.* *Integument* of the seed not crustaceous. *Embryo* straight, in the axis of a fleshy *albumen,* having the same direction as the seed. — Flowers *large, generally of a bright colour.* Leaves *fleshy, indistinctly nerved, all radical.* Roots *bulbous.*

1. Narcíssus *Linn.* Daffodil.

Perianth superior, coloured, with a spreading 6-partite *limb*, and a campanulate or cup-shaped *crown* or *nectary*, within which are the *stamens*. *Flowers* from a *spatha*. — Named from *ναρκη*, *stupor*, in allusion to the powerful and injurious smell of the flowers. More immediately derivable from the youth *Narcissus*, who is fabled to have been changed into this plant, an inhabitant sometimes of watery places, by the banks of streams.

1. N. *Pseudo-narcíssus* L. (*common Daffodil*); spatha single-flowered, nectary campanulate erect crisped at the margin obsoletely 6-cleft, as long as the ovate segments of the perianth. *E. Bot.* t. 17; *Ed. Cat.* p. 9.

Moist woods and thickets. Rare in Scotland; about Culross and Dunoon, but scarcely indigenous. Near Templeogue, Ireland. *Fl.* March, Apr. ♃. — *Flowers* large, yellow.

2. N. **poéticus* L. (*Narcissus of the Poets*); spatha mostly single-flowered, nectary very short concave membranous and crenate at the margin, leaves with an obtuse keel. *E. Bot.* t. 275; *Ed. Cat.* p. 9.

Heathy open fields on a sandy soil, said to be wild in Norfolk and Kent. *Fl.* May. ♃. — Larger than the last, with a *flower* of a very different structure, and with a deeply coloured border to the *nectary*. Its beauty and delicious odour have recommended it to general culture. Smith says this is the true *Narcissus* of the Greek writers, as clearly described by Dioscorides.

3. N. **biflórus* Curt. (*pale Narcissus*); spatha 2-flowered, nectary very short concave membranous and crenate at the margin, leaves acutely keeled. *E. Bot.* t. 276; *Ed. Cat.* p. 9.

Sandy fields, in Kent and Herts; near Totness, Devon; and about Dublin, frequent. *Fl.* April, May. ♃. — Similar to the last in the general form of the *flowers*, but these are smaller, not of so pure a white, without the coloured border to the nectary, and with a less agreeable scent.

2. Galánthus *Linn.* Snowdrop.

Perianth petaloid, of 6 pieces, 3 outer ones spreading, 3 inner smaller, erect, emarginate. *Flowers* from a *spatha*. — Named from *γαλα*, *milk*, and *ανθος*, a *flower*. The French name, *perce-neige*, is very expressive.

1. G. **nivális* L. (*Snowdrop*). *E. Bot.* t. 19; *Ed. Cat.* p. 6.

Woods, orchards, meadows, pastures, &c., in very many places in England, Scotland, and Ireland. *Fl.* Feb. ♃. — *Bulb* ovate. *Leaves* 2, broadly linear, glaucous-green. *Flowers* solitary, drooping, elegant, rendering this plant a general favourite.

> "Like pendent flakes of vegetating snow
> The early herald of the infant year,
> Ere yet the adventurous Crocus dares to blow
> Beneath the orchard boughs thy buds appear."

3. Leucójum *Linn.* Snowflake.

Perianth campanulate, superior, petaloid, of 6 equal pieces, a little thickened at the point. *Flowers* from a *spatha.*— Named from λευκος, *white*, and ιον, a violet.

1. L. **æstívum* L. (*Summer Snowflake*); spatha many-flowered, style club-shaped. *E. Bot.* t. 621; *Ed. Cat.* p. 7.

Moist meadows; Thames' side, below Greenwich, especially the Kentish shore; in Suffolk, Berkshire, Westmoreland, Northumberland, &c. *Fl.* May. ♃.— *Root* bulbous. *Leaves* long, linear, keeled; *scape* 2-edged. *Flowers* white, drooping.

Ord. XCVII. DIOSCOREÆ.

Dicœcious. Limb of the *perianth* with 6 divisions.—*Sterile fl. Stamens* 6 from the base of the perianth. — *Fertile fl. Ovary* 3-celled; *cells* 1—2-seeded. *Style* deeply trifid. *Stigmas* undivided. *Fruit* dry and flat, with 2 of its cells frequently abortive, or (in *Tamus*) baccate. *Embryo* small, near the *hilum*, lying in a large cavity of the cartilaginous *albumen.* — *Mostly twining and tropical* shrubs. Leaves *with reticulated veins.* Flowers *small, bracteated.*—*Dioscorea sativa* affords the well-known *Yam.*

1. Támus *Linn.* Black Bryony.

Barren fl. Perianth single, in 6 deep segments.—*Fertile fl. Perianth* single, superior, in 6 deep segments, contracted at the neck. *Stigmas* 3. *Berry* of 3 cells. — Name: supposed to be the *Uva Taminia* of Pliny, or *Black Bryony.*

1. T. *communis* L. (*common Black Bryony*); leaves undivided cordate acute. *E. Bot.* t. 91; *Ed. Cat.* p. 13.

Hedges and thickets, England. *Fl.* June. ♃.—*Root* very large, acrid, black externally, fleshy. *Stems* long, twining and reaching among trees and bushes to a great extent. *Flowers* greenish-white. *Berry* red.

Sub-Class II. Glumaceæ. (Ord. XCVIII, XCIX.)

Flowers destitute of true perianth (*unless the bristles in some* Cyperaceæ *or the curious urceolate covering to the ovary in* Carex *can be considered such*), *but enclosed within imbricated alternate chaffy scales or bracteas.*

Ord. XCVIII. GRAMINEÆ.[1]

(See Tabs. VIII. and IX.)

Glume (*calyx*, L.) 1- or many-flowered, mostly of 2 valves,

[1] Here we have a structure in the flower, and a habit in the whole plant, so different from those of other flowering plants, that, in the former especially, peculiar names have been given to its different parts, which it may be de-

rarely of 1, or wanting. *Perianth* (*corolla*, L.) glumaceous, 1—2-valved. *Stamens* hypogynous, usually 3. *Anthers* versatile. *Ovary* superior, with 1 ovule. *Styles* 2, rarely 1 or 3. *Stigmas* often plumose. *Pericarp* generally forming one body with the seed. *Embryo* lateral, on one side at the base of the farinaceous *albumen*.— Stems *or* culms *fistulose, generally simple and herbaceous, jointed, sometimes branched, rarely shrubby.* Leaves *one to each joint, with a sheath slit longitudinally on one side, having a membranous appendage* (*ligule*) *at its summit.* Flowers *small, solitary, or in spikelets, which are panicled* (Tab. 9. f. 42. *d.*) *or spiked* (Tab. 9. f. 42. *c. e. f. g.*).—A most natural Order, and one of the highest importance in the whole Vegetable Kingdom, comprehending the true *Grasses.*

A. *Stamens* 2.

1. Anthoxánthum *Linn.* Vernal-grass. (Tab. VIII. f. 1.)

Cal. of 2 valves, glumaceous, 1-flowered. *Cor.* double, each of 2 valves; the *ext.* awned; the *int.* small, awnless. *Stam.* 2. —Name: ανθος, a *flower*, and ξανθος, *yellow*; from the yellowish hue of the spikes, especially in age.

1. A. *odorátum* L. (*sweet-scented Vernal-grass*); panicle spiked oblong, flowers upon partial stalks and longer than their awns. *E. Bot.* t. 647; *Ed. Cat.* p. 1.

Meadows, woods, and pastures, abundant, often very alpine. *Fl.* May, June. ♃.—A foot high, yielding an agreeable smell in the act of drying, like that of *Woodruff* (*Asperula odorata*), and giving the well-known scent to new-made hay. *Leaves* short. *Panicle* compact, spiked, yellow in age. *Valves* of the *calyx* very unequal: this calyx Mr. Brown justly considers as 3-flowered; and what are here called the two outer valves of a double corolla, he looks upon as two imperfect outer and lower flowers, each reduced to a single awned valve;

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sirable to explain. The floral coverings, as they are termed, are *glumaceous* or chaffy. The *outer* of these, which do not immediately contain stamen or pistil, and are composed of one (see Tab. 9. f. 36. *a.*), two (Tab. 8. f. 3. *a.*), or three pieces, are here called the *calyx*, and the pieces the *glumes* or *valves*, and they *seem* to hold the place of a calyx in the two-valved, single-flowered genera; but often they include many flowers (Tab. 8. f. 23. *a.*), and with justice are considered *bracteas.* These Messrs. Brown and Lindley call *glumes.* The inner, generally of a thinner texture, is here, as by Linnæus and Smith, named *corolla*; its pieces, one (Tab. 8. f. 3. *b.*) or two (Tab. 8. f. 5. *b.*) in number, *glumes* or *valves.* This is the true perianth, and so called by Brown (*paleæ*, by Beauv. and Lindl.). Within this, and at the base of the germen, are generally 2 collateral, rarely 1, small *scales* (Tab. 9. f. 42. *a.*), *nectary* of Linn. and Sm. The *stem* is mostly hollow, and jointed, and called a *culm.* It bears at each joint a *leaf*, which is sheathing at the base and split up on one side; and at the top of the sheath, just where it expands into the blade, is frequently a small projecting membrane, called a *ligule* (Tab. 9. f. 42. *b.*).

while the two inner awnless valves belong to a central perfect flower. *Stamens* only 2, in which particular it differs from all our other grasses.

B. *Stam.* 3. *Style* 1.

2. NÁRDUS *Linn.* Mat-grass.
(Tab. VIII. f. 2.)

Cal. 0. *Cor.* of 2 valves. — Named from *ναρδός*, formerly given to an odoriferous substance, but not applicable in this case.

1. N. *stricta* L. (*Mat-grass*); spike erect slender, the florets all pointing one way. *E. Bot.* t. 290; *Ed. Cat.* p. 9.

Moors and heaths, most abundant. *Fl.* June. ♃. — A grass of simple structure, growing in short tufts, so coarse and rigid that cattle will not eat it. *Culms* and *leaves* setaceous. *Spike* long, erect, grooved, and toothed at short distances for the insertion of the florets. *Valves* of the *cor.* lanceolate: outer one coriaceous, purplish-green, tapering gradually into an awn; inner smaller, awnless, membranous.

C. *Stam.* 3. *Styles* 2.

* *Flowers or spikelets panicled.* (Tab. IX. f. 42. *d.*) *Panicle often very compact, so as to appear spiked.* (Tab. IX. f. 42. *c.*) Gen. 3—22.

† *Calyx single-flowered.* (Tab. VIII. f. 3—13.) Gen. 3—13.

3. ALOPECÚRUS *Linn.* Fox-tail-grass.
(Tab. VIII. f. 3.)

Cal. 2-valved; valves nearly equal, mostly connate at the base. *Cor.* of 1 valve with an awn rising from the base. — Named from *αλωπηξ*, a *fox*, and *ουρα*, a *tail*.

1. A. *praténsis* L. (*Meadow Fox-tail-grass*); culm erect, smooth, panicle spiked cylindrical obtuse, calyx-glumes lanceolate acute hairy connate at the base, awn twice the length of corolla. *E. Bot.* t. 729; *Ed. Cat.* p. 1.

Meadows and pastures, common. *Fl.* May, June. ♃.—1½ to 2 ft. high: an excellent grass for cattle. *Panicle* of a yellow-green colour with silvery hairs. *Cal.* and *Cor.* much ciliated; in this, as in all the species, remarkably compressed.

2. A. *alpínus* Sm. (*Alpine Fox-tail-grass*); culm ascending smooth, panicle spiked ovate, cal.-glumes ovate abruptly acute hairy united at the base, awn scarcely longer than the corolla, upper sheath inflated thrice as long as its lanceolate leaf. *E. Bot.* t. 1126; *Ed. Cat.* p. 1.

Discovered by *Mr. R. Brown* on Loch na Gaar, in Aberdeenshire. It was pointed out to me by *Mr. T. Drummond* on wet rocks by a waterfall at Loch Whorol, Clova. White-water and other streams of Clova: *Mr. H. C. Watson, Dr. Graham.* *Fl.* July, Aug. ♃. — This

plant, which, even at first sight, is readily distinguishable by its ovate *panicle* and short broad upper *leaf*, with its inflated *sheath* (as first observed by Mr. Brown in the Appendix to Parry's 1st Voyage), seems to be quite unknown to botanists abroad, and is very rare indeed in this country. It is, however, plentiful in North America and Spitzbergen.

3. A. *agréstis* L. (*slender Fox-tail-grass*); culm erect scabrous above, panicle spiked cylindrical acuminate, calyx-glumes acute almost glabrous united as far as the middle. *E. Bot.* t. 848; *Ed. Cat.* p. 1.

Fields and way-sides. June, July. ⊙.— Readily known by its attenuated *panicles* or *spikes*, frequently of a purplish colour, and by the lanceolate acute *cal.-glumes*, which are glabrous or a little rough at the keel. *Corolla* quite smooth. *Not indigenous to Scotland. See Murray's Northern Flora.*

4. A. *bulbósus* L. (*tuberous Fox-tail-grass*); culm erect, panicle spiked cylindrical acuminate, calyx-glumes acute slightly hairy free, root tuberous. *E. Bot.* t. 1249; *Ed. Cat.* p. 1.

Wet salt-marshes in England, but rare; near Yarmouth and Weymouth. In Cardiff marshes, Wales. *Fl.* July. ♃.— The *inflorescence*, though very dense, is not a true *spike*. The *pedicels* mostly bear single flowers, but often another very small abortive one. *Calyx-glumes* entirely distinct to the base.

5. A. *geniculátus* L. (*floating Fox-tail-grass*); culm ascending bent at the joints, panicle spiked cylindrical obtuse, calyx-glumes united at the base obtuse slightly hairy and fringed, awn twice as long as the corolla. *E. Bot.* t. 1250; *Ed. Cat.* p. 1.

In pools and wet and marshy places, sometimes on dry ground. *Fl.* July, Aug. ♃.

6. A. *fúlvus* Sm. (*Orange-spiked Fox-tail-grass*); culms ascending bent at the joints, panicle spiked cylindrical obtuse, calyx-glumes united at the base obtuse slightly hairy and fringed, awn the length of the calyx. *E. Bot.* t. 1467; *Ed. Cat.* p. 1; *Hook. Scot.* i. p. 22 (under A. geniculatus). A. geniculatus *Host Gram. Austr.* v. ii. t. 32.

Ponds and ditches; near Birmingham; Norwich; Essex; Wrexham; and in Angus and Fifeshire. *Fl.* July. ♃.— I had certainly considered this plant, in *Fl. Scotica*, as not different from *A. geniculatus*. *Awn* inserted higher up than in *A. genic.*; *spike* more slender and paler. *Anthers* orange-coloured.

4. Phálaris *Linn.* Canary-grass.
(Tab. VIII. f. 4.)

Cal. of two erect carinated valves, larger than the two-valved at length indurated *corolla*, which is accompanied at the base by one or two valves of other imperfect florets. *Fruit* invested with the hardened corolla.— Named from φαλος, *shining*; *Canary-seed* being very glossy.

1. *P. *Canariénsis* L. (*cultivated Canary-grass*); panicle spiked ovate, cal.-glumes boat-shaped entire at the point accompanied by the single valves of 2 other florets. *E. Bot.* t. 1310; *Ed. Cat.* p. 9.

Naturalised in many parts of England and Scotland. *Fl.* July. ⊙.—1—2 feet high, glaucous. *Leaves* broad. *Spikes* handsome, composed of large, pale, yellow-green *calyx-glumes*, marked with deeper lines and singularly keeled at the back. *Canary-seed*, as we see it, is not only the seed of this plant, but the seed invested closely (as all *grass-seeds* are) with the pericarp, and that again with the hardened corolla, which occasions its glossy appearance and pointed form.

2. P. *arundinácea* L. (*Reed Canary-grass*); panicle erect its branches patent, florets clustered secund, imperfect floret consisting of a small hairy valve. *E. Bot.* t. 402, and t. 2160. f. 2; *Ed. Cat.* p. 9. β. picta, *Ed. Cat.* p. 9. Arundo colorata, *Fl. Br.* Digraphis *Trin. Lindl.*

Sides of lakes and rivers, common. *Fl.* July, Aug. — Frequent in gardens, with variegated leaves, and called *ribband-grass*. Very different from the last in general habit, but not in essential character. *Panicle* large, 6—8 inches long, often brownish or purplish-green. Excellent for securing river-banks; its roots are creeping, and here and there tufted.

5. Ammóphila *Host.* Sea-reed.
(Tab. VIII. f. 5.)

Panicle spiked. *Cal.* of 2 nearly equal, keeled valves, longer than the *corolla*, surrounded at the base by a tuft of hairs. — Named from αμμος, *sand*, and φιλος, a *lover*.

1. A. *arundinácea* Host (*common Sea-reed, Marum*, or *Matweed*); panicle cylindrical acuminate, glumes acute, hairs one third of the length of the corolla. Arundo arenaria, *E. Bot.* t. 520. Psamma *Beauv.* Ammophila arenaria, *Ed. Cat.* p. 1.

Sandy sea-shores, frequent. *Fl.* July. ♃. — *Root* much creeping. *Leaves* long, narrow, rigid, involute, glaucous. *Culm* 2—3 feet high. *Cor.* far more rigid than the *calyx*, the larger *valves* with a small sinus below the point. — Extensively employed in Norfolk and Holland for preserving the banks of sand which protect those countries from the inroads of the sea. A second species, *A. Baltica*, is found on the shores of the Baltic.

6. Phléum *Linn.* Cat's-tail-grass.
(Tab. VIII. f. 6.)

Panicle compact. *Cal.* of 2 valves nearly equal, acuminate, or mucronate-aristate, including the *cor.* of 2 awnless valves. *Seed* free. — Named from φλεος, or φλεως, formerly applied, as is supposed, to the *Reed-mace* (*Typha*), to which our grass bears some distant resemblance.

1. P. *praténse* L. (*Cat's-tail-grass, Timothy-grass*); panicle spiked cylindrical, glumes truncated mucronate-aristate ciliated

at the back longer than the awn. *E. Bot.* t. 1076; *Ed. Cat.* p. 10. β. nodos., *Ed. Cat.* p. 10.

Meadows and pastures, very common. *Fl.* June. ♃. — *Root* sometimes tuberous, and then the plant is the *P. nodosum* Willd. *Cal.-glumes*, as in all the species, extremely compressed, keeled with a dorsal green nerve running out into a spreading awn, scarcely half so long as the valve.

2. P. *alpínum* L. (*alpine Cat's-tail-grass*); panicle spiked ovate-oblong, cal.-glumes truncated mucronate-aristate ciliated at the back equal in length to the awn. *E. Bot.* t. 519; *Ed. Cat.* p. 10.

Rare; on the Breadalbane mountains and Garway Moor. *Fl.* July. ♃. — *Spike* short, purplish.

3. P. *ásperum* Jacq. (*rough Cat's-tail-grass*); panicle spiked cylindrical, cal.-glumes wedge-shaped mucronate rough, stem often branched. *E. Bot.* t. 1077 (P. paniculatum); *Ed. Cat.* p. 10.

Rare in dry open fields, in the western and midland parts of England. *Fl.* July. ☉. — *Culms* very leafy, and the long *spikes* are partly concealed among them. *Cal.-glumes* tumid upwards.

4. P. *Boehméri* Schrad. (*purple-stalked Cat's-tail-grass*); panicle spiked cylindrical, cal.-glumes linear-lanceolate acuminate-aristate downy at the keel. *E. Bot.* t. 459 (Phalaris phleoides *L.*); *Ed. Cat.* p. 10.

Dry sandy and chalky fields, rare; principally in Norfolk and Cambridgeshire. *Fl.* July. ♃. — *Culms* simple, erect, sparingly leafy, slender, shining purple.

5. P. *Michélii* All. (*Michelian Cat's-tail-grass*); panicle spiked cylindrical, cal.-glumes lanceolate acuminate strongly ciliated at the back. *E. Bot.* t. 2265; *Ed. Cat.* p. 10. Phalaris alpina *Hœnke.*

Rocky parts of the high mountains of Clova, Scotland. *Fl.* July, Aug. ♃. — Distinguishable at once from the preceding species by its gradually tapering *glumes.*

6. P. *arenárium* L. (*Sea Cat's-tail-grass*); panicle spiked oblong-obovate, cal.-glumes lanceolate acute ciliated at the back. *Hook. Scot.* i. p. 24; *Ed. Cat.* p. 10. Phalaris aren., *E. Bot.* t. 222.

On loose sand, especially near the sea. *Fl.* May, June. ☉. — *Culms* 5—6 inches high, many from the same root. *Cor.* twice as short as the *cal.*, membranous, truncated.

7. Lagúrus *Linn.* Hare's-tail-grass. (Tab. VIII. f. 7.)

Panicle spiked. *Cal.-glumes* of 2 fringed valves, lengthened into feathery awns. Outer valves of the *cor.* bifid at the apex, with a dorsal awn. — Named from λαγως, a *hare*, and ουρα, a *tail.*

1. L. *ovátus* L. (*ovate Hare's-tail-grass*). *E. Bot.* t. 1334; *Ed. Cat.* p. 7.

Very rare. Sandy grounds in the north and west of Guernsey. *Fl.* June. ☉. — The only species of the genus; remarkable for its soft and pale heads of *flowers*, from among which the long *awns* are protruded.

8. Mílium *Linn.* Millet-grass.
(Tab. VIII. f. 8.)

Panicle spreading. *Cal.* 2-valved, flattish, herbaceous, rather acute, longer than the *cor.* *Fruit* invested with the permanent hardened *cor.* — Named either from *mille*, a *thousand*, on account of its fertility; or, according to Théis, from the Celtic *mill*, a *stone*, from the hardness of its fruit.

1. M. *effúsum* L. (*spreading Millet-grass*); panicle glabrous its branches subverticillate, leaves lanceolate, ligule obtuse. *E. Bot.* t. 1006; *Ed. Cat.* p. 8.

Moist shady woods. *Fl.* June. ♃. — *Culms* 3—4 feet high.

9. Gastrídium *Beauv.* Nit-grass.
(Tab. VIII. f. 9.)

Panicle contracted, spiked. *Cal.* 2-valved, acute, ventricose at the base, membranaceous, much longer than the *cor.* *Cor.* of 2 valves and investing the fruit, outer one mostly with a dorsal awn. — Named from γαστριδιον, a *ventricle*, or little *swelling*, as is seen at the base of the calyx.

1. G. *lendígerum* Beauv. (*awned Nit-grass*); cal.-valves lanceolate acuminate, awn twice their length. *Ed. Cat.* p. 7. Milium lendigerum, *E. Bot.* t. 1107.

Places where water has stagnated near the sea, rare. In Sheppey; at Weymouth; and at Gillingham in Norfolk. *Fl.* Aug. ♃.—4 to 6 or 8 inches high, with numerous glossy *florets*, singularly swollen at the base.

10. Stípa *Linn.* Feather-grass.
(Tab. VIII. f. 10.)

Panicle erect, compact. *Cal.* of 2 valves, longer than the *cor.* *Cor.* cartilaginous, involute, terminated with a very long twisted awn, jointed at the base, and finally separating at the joint. — Named from στυπη, *tow*, or *flax*, from the flaxen or silky appearance of the common species of the gardens.

1. *S. *pennáta* L. (*common Feather-grass*); leaves rigid setaceous grooved, awns exceedingly long feathering to the point. *E. Bot.* t. 1356; *Ed. Cat.* p. 13.

Said to have been found in Dillenius' time in Westmoreland. *Fl.* June. ♃. — A great ornament to our gardens in the summer, and to our rooms in the winter, for if gathered before the seed is ripe, the long feathery awns remain, and a tuft of them is almost as beautiful as the famed tail of the Bird of Paradise.

11. Polypógon *Desf.* Beard-grass. (Tab. VIII. f. 11.)

Panicle compact, somewhat spiked. *Cal.* of 2 valves, equal, larger than the *cor.*, awned at the extremity. *Cor.* of 2 unequal valves; the outer obtuse, awned at the very extremity. — Named from πολυ, *many*, and πωγων, a *beard*; from the bearded appearance of the panicle.

1. P. *Monspeliénsis* Desf. (*annual Beard-grass*); awns thrice as long as the rather obtuse rough valves of the cal., root annual. *Ed. Cat.* p. 10. Agrostis panicea, *E. Bot.* t. 1704. Phleum crinitum, *Br. Fl.*

Rare, in moist pastures near the sea. In Hampshire and Essex; near Cley, Norfolk. Guernsey. Northfleet Hope, Thames: *Mr. G. Francis.* Inverkeithing: *R. Andr. Robertson, jun. Fl.* July, Aug. ☉. — A beautiful grass; rare, but undoubtedly wild in our country; most abundant in the warmer parts of Europe.

2. P. *littorális* Sm. (*perennial Beard-grass*); awns equal in length to the almost glabrous acute valves of the calyx, root perennial. *Ed. Cat.* p. 10. Agrostis littoralis, *E. Bot.* t. 1251.

Muddy salt-marshes, rare. Near Cley, Norfolk; in Essex, and near Woolwich. *Fl.* July. ♃. — Very different from the last species; but rightly referred, by Sir J. E. Smith, to *Polypogon*. The calyx-valves are more acuminated than in *P. Monsp.*, and taper more gradually into the much shorter awn; outer valve of the *cor.* truncate and toothed at the points in both. — Long supposed peculiar to England, but now found in Germany.

12. Calamagróstis *Adans.* Small-reed. (Tab. VIII. f. 12.)

Panicle loose. *Cal.* of 2 valves, longer than the two valves of the *corolla*, which is surrounded by hairs at the base, and has the outer valve awned. — Named from καλαμος, one of the *Palms*, and αγροστις, a genus of grasses; a barbarous denomination, and only admissible on the ground of its being now generally adopted.

1. C. *Epigéjos* Roth (*Wood Small-reed*); cal.-glumes subulate their keel rough, panicle erect close, flowers crowded unilateral, corolla with a dorsal awn nearly as long as the calyx. Arundo Epigejos *L.*: *E. Bot.* t. 403; *Ed. Cat.* p. 2. *E. Fl.* v. i. p. 169 (excl. the syn. of *Hook. Scot.* Arundo Calamagrostis).

In shady moist places. About London and Norwich. Kent. Dalrymple Wood, Ayr, Scotland. Aberdeenshire: *Dr. A. Murray. Fl.* July. ♃.

2. C. *lanceoláta* Roth (*purple-flowered Small-reed*); cal.-glumes lanceolate their keel smooth, panicle erect loose, flowers scattered spreading, corolla with a very short terminal awn be-

tween the bifid point. Arundo Calamagrostis *Linn.*: *E. Bot.* t. 2159.

Moist hedges, in fenny countries, not uncommon. *Fl. June.* ♃.— *Panicle* much smaller and looser than the last; *flowers* more purple and shining.

3. C. *Lappónica* Hartm. (*Lapland Small-reed*); panicle erect close, cal.-glumes lanceolate acuminate a little rough on the keel, corolla as long as the calyx equal in height with the calyx the hairs and the awn, which latter is inserted near the base. Arundo *Wahl. Lapp.* p. 27. t. 1. a. e. Deyeuxia? *Kunth.*

Lough Neagh, and other places in the county of Antrim: *Mr. D. Moore. Fl.* June, July. ♃.— This is one of several interesting discoveries for which we are indebted to Mr. Moore's unwearied exertions in Ireland. It is from $2\frac{1}{2}$ to 3 feet high; its *leaves* narrow, rigid, convolute when dry; and, like the following species, it has a minute scale or short pedicel within the calyx, the rudiment of a second flower, bearing a tuft of hairs at the extremity; the distinguishing character of *Deyeuxia*. The *flowers* are at first singularly tinged with purplish-blue, in age becoming yellowish-brown. *Branches* of the *panicle* spreading during the short period of flowering; before and after, erect, compact.

4. C. *stricta* Nutt. (*narrow Small-reed*); panicle erect close, cal.-glumes broadly lanceolate acute a little rough on the keel, corolla as long as the calyx much longer than the hairs, with an awn equal to it in height inserted above the middle. Arundo stricta, *E. Bot.* t. 2160. Deyeuxia *Kunth.*

In Scotland; very rare. Discovered by *Mr. G. Don*, at White Muir Marsh, near Forfar; but it does not now exist there. Near Rescobie, 4 miles from Forfar. *Fl.* June. ♃.— The smallest of the genus. *Panicle* 1—4 inches long. *Flowers* not much more than half the size of those of *C. Lapponica*, and more obtuse. *Cal.* brown, smooth, except at the keel. *Cor.* brownish, truncate. *Hairs* not half the length of the corolla. Quite distinct from the preceding.

13. Agróstis *Linn.* Bent-grass.
(Tab. VIII. f. 13.)

Panicle loose. *Cal.* of 2 unequal glumes, longer than the *cor.* *Corolla* of 2 unequal valves; the inner sometimes wanting, the outer with or without an awn. *Seed* free.— Name: given by the Greeks to grasses, from αγρος, a *field*, because they are so abundant in open places.

1. A. *canina* L. (*brown Bent-grass*); branches of the panicle long slender erecto-patent, cal.-valves unequal lanceolate rough at the keel, corolla of 1 valve with a dorsal awn from below the middle, leaves linear. *E. Bot.* t. 1856; *Ed. Cat.* p. 1. Trichodium *Schrad.* β. tenuifol. *Curt.*: *Ed. Cat.* p. 1.

Moist heaths and moory places, abundant. *Fl.* June, July. ♃.— Very variable in the size and colour of its flowers, purple or green, and

in the length of the dorsal *awn*, which is sometimes included within the calyx, at other times considerably exserted. I have never seen more than one valve to the corolla, not even the rudiment of a second; and it is from this circumstance that Schrader has constituted of it the genus *Trichodium*. But other species of *Agrostis* have a very reduced corolla, and *A. setacea*, placed in *Trichodium* by Dr. Lindley, has assuredly an inner corolla, and that *constantly*. Smith and Leers have detected an inner valve, even in *A. canina;* hence, as the former observes, its presence or absence does not afford even a specific character.

2. A. *setácea* Curt. (*Bristle-leaved Bent-grass*); branches of the panicle short close spreading in flower, cal.-valves unequal lanceolate rough at the keel, outer valve of the corolla with a long geniculated twisted awn from its base, inner very minute, leaves setaceous. *E. Bot.* t. 1188; *Ed. Cat.* p. 1. Trichodium *R. & S.*

Very local, almost wholly confined to the dry downs of the extreme south and south-west parts of England; as Hampshire, Devonshire, and Cornwall. *Fl.* June, July. ♃. — Larger valves of the *corolla* white, thin, and membranous, truncate at the top, with 4 green nerves, of which two, the lateral ones, project into mucros. *Awn* from the very base rough, truly geniculated and twisted. Inner *valves* very small, truncate and toothed, accompanied on each side at the base by a pencil of white hairs.

3. A. *Spica vénti* L. (*silky Bent-grass*); panicle spreading, cal.-valves unequal lanceolate rough at the keel, outer valve of the corolla bifid terminated by a long straight awn, inner one smaller with a small barren pedicel at its base. *E. Bot.* t. 951; *Ed. Cat.* p. 1. Anemagrostis *Trin.*

Rare, in sandy fields which are occasionally flooded, principally about London: in Norfolk and Lancashire. *Fl.* June, July. ☉. — A beautiful grass, with very slender branches to its ample panicle, which is wavy and glossy like silk, well named by old Parkinson "*Gramen agrorum venti spica.*" *Awn* many times longer than the *cor.*, rough. Inner *valve* of *cor.* not much less than the outer: at its base is a little pedicel, destitute of flower, which has a small tuft of hair on each side.

4. A. *vulgáris* With. (*fine Bent-grass*); branches of the panicle smoothish its branchlets diverging, outer valve of the *cor.* 3-nerved, ligule extremely short and truncate. *E. Bot.* t. 1671; *Ed. Cat.* p. 1. — *β. aristata;* outer valve of the cor. awned. *Ed. Cat.* p. 1. A. canina *With.* — *γ. pumila;* scarcely 3 inches high. *Ed. Cat.* p. 1. A. pumila *Lightf. Scot.* p. 1081 (*fig. in title-page*). — *δ. vivipara, Ed. Cat.* p. 1.

Meadows, pastures, and banks, common everywhere. *Fl.* June, July. ♃. — *Root* creeping, throwing out many, mostly ascending *culms*, 1 or 1½ foot high. *Panicle* purplish; *rachis* smooth, and the branchlets nearly so. *Cal.-glumes* lanceolate, smooth, shining, rough on the back. *Cor.-glume* of 2 thin, delicate, membranous, unequal valves; *outer one* a little shorter than the *cal.*, 3-nerved, tridentate, awnless in *α;* bearing an awn of uncertain length, but mostly short, in *β*, arising from the central nerve, a little below the middle of the back; *inner valve*

half as small, 2-nerved, bifid. I possess specimens of this species bearing the rudiment of a second flower, upon a rather long foot-stalk, in the same calyx.

5. A. *álba* L. (*Marsh Bent-grass*); branches of the panicle hispid, branchlets patent, outer valve of cor. 5-nerved, ligule oblong. *E. Bot.* t. 1189; *E. Fl.* v. i. p. 93; *Schrad. Germ.* p. 209 (*descr. excellent*); *Ed. Cat.* p. 1.—β. *stolonifera* L.: *Ed. Cat.* p. 1.—γ. *sylvatica, Ed. Cat.* p. 1. A. stolonifera *Linn.: E. Bot.* t. 1532.

Pastures, roadsides, and in various other situations, abundant. *Fl.* July, August. ♃. — *Plant* stouter than the last, and generally taller. *Culms* ascending, often rooting at the base, and throwing out runners. *Panicle* rather contracted, pale green or purplish, branchlets patent. *Cal.-glumes* like those in *A. vulgaris*, as are those of the *cor.*, but the outer valve has 5 nerves and as many teeth, and the inner one is only faintly 2- or 3-nerved at the base, nearly entire and obtuse at the extremity. In some there is a short awn at the base of the outer valve of the *cor.*, this constitutes the *A. compressa* Willd., and occasionally the flowers are viviparous, which is the *A. sylvatica* Linn. I believe all are now agreed that the *A. stolonifera* of authors is the same as *A. alba*. The famous Fiorin-grass of Dr. Richardson and the Irish agriculturalists is what I have called *A. alba*, as I ascertained by the aid of specimens gathered in the company of Dr. Richardson himself. I know not of any British awnless *Agrostides* which may not be reduced either to *A. vulgaris* or *A. alba*. The two species are indeed themselves very closely allied.

†† *Calyx* 2- *or rarely* 3-*flowered.* (Tab. VIII. f. 14—22.)
Gen. 14—22.

14. Catabrósa *Beauv.* Whorl-grass.
(Tab. VIII. f. 14.)

Panicle spreading. *Cal.* of 2 valves, membranaceous, very obtuse, much shorter than the spikelets, 2- or 3-flowered, often with a 4th imperfect floret. *Cor.* 2-valved, coriaceous, membranous only at the extremity, ribbed, truncated, awnless, erose, nearly equal. — Named from καταβρωσις, *a gnawing*; from the erose extremity of the glumes.

1. C. *aquática* Beauv. (*Water Whorl-grass*); panicle with whorled patent branches, leaves broadly linear obtuse. *Ed. Cat.* p. 3. Aira aquatica *Linn.: E. Bot.* t. 1557.

Banks of rivers, and floating in pools of water. *Fl.* May, June. ♃.— This is very different in habit and generic character from Aira, and from any other grass I am acquainted with. Mertens unites it to the long-spikeleted *Poas*, which now, according to Smith, form the genus *Glyceria*; but it does not naturally combine with them. *Root* or *caudex* very long, branched, floating, jointed, sending from the joints fibrous radicles below, and *culms* above, a foot or more long, stout with short broad *leaves*. *Cal.* scarcely nerved, thin and membranous, broadly oval, obtuse. *Cor.* of a thick texture, brownish-green, white and diaphanous

at the blunted extremity. Mr. Wilson finds in the wet sand of the north shore at Liverpool a *var.* not two inches high, each calyx containing in general but one perfect flower.

15. Aíra *Linn.* Hair-grass.
(Tab. VIII. f. 15.)

* *Corolla awnless. Panicle spiked.* (Kœleria *Pers.* Airochloa *Link, Lindl.*)

Cal. of 2 valves, unequal, containing 2 perfect florets. *Cor.* 2-valved, membranaceous and thin; the outer one awned (rarely awnless) near the base. *Fruit* free. — Named from αιρω, to *destroy*. This name was anciently applied to the *Lolium temulentum* (*bearded Darnel*), on account of its injurious effects; and now to the present genus of grasses, though having little in common with it.

1. A. *cristáta* L. (*crested Hair-grass*); panicle spiked smoothish, leaves hairy. *E. Bot.* t. 648. Kœleria crist., *Ed. Cat.* p. 7. Poa *Linn.*

Dry pastures; most frequent in the north, and especially near the sea. *Fl.* June, July. ♃. — 6—8 inches high. *Leaves* linear, short, glaucous. *Spike* shining, ovato-lanceolate. *Glumes* of the *cal.* acute or slightly acuminate, lanceolate, compressed, glabrous or downy and a little rough at the keel. Inner valves of the *corolla* rough, white, delicate, reticulated, bifid, with two longitudinal folds.

** *Corolla awned. Panicle lax.*

2. A. *cæspitósa* L. (*turfy Hair-grass*); panicle diffuse, branches scabrous, florets hairy at the base rather longer than the cal., awn straight inserted near the base of and not exceeding in length the corolla. *E. Bot.* t. 1432; *Ed. Cat.* p. 1. — β., *Ed. Cat.* p. 1. Deschampsia *Beauv.*

Moist shady places, and borders of fields, plentiful. *Fl.* June—Aug. ♃. — Much tufted. *Culms* 2—4 feet high. *Leaves* linear, acuminate, rough at the margin. *Panicle* large, silvery-grey or greenish, much branched. *Spikelets* acute. *Cal.-valves* unequal, lanceolate, subglabrous, rather acute, erose. *Florets* with a few longish hairs at the base, upper ones pedunculated; their *valves* ovate, obtuse, erose, the outer one with 5 short teeth, the inner bifid. Mr. Wilson finds it on Snowdon, viviparous, with the awn inserted above the middle of the valve; and at Llanberris with a small panicle and purple florets.

3. A. *alpína* L. (*smooth Alpine Hair-grass*); panicle subcoarctate, branches and pedicels perfectly smooth, florets villous at the base as long as the calyx, awn inserted above the middle and scarcely exceeding the cor. in length, leaves linear. *Ed. Cat.* p. 1; *E. Bot.* t. 2102 (A. lævigata).

Moist rocks on the higher Scottish mountains and in Wales, often viviparous. *Fl.* June, July. ♃. — About 1 foot high, very smooth. *Leaves* only scabrous to the touch on the upper side, short. *Panicle* rather small, branches erect; the lower ones, when viviparous

(which they mostly are), patent and even drooping. *Spikelets* not numerous, larger than in *A. cæspitosa*, and more resembling, as does the whole plant, *A. flexuosa*. *Cal.-valves* equal, quite smooth. *Florets* with a short tuft of hairs at the base: *upper one* not pedicellate. *Valves* of the *cor.* lanceolate, acute, not compressed. In *A. atropurpurea* Wahl., the panicle is fewer-flowered, and the florets are considerably shorter than the calyx.

4. A. *flexuósa* L. (*waved Hair-grass*); panicle (when flowering) diffuse, florets villous at the base as long as the cal., awn jointed inserted near the base of but much longer than the cal., leaves setaceous. *E. Bot.* t. 1519; *Ed. Cat.* p. 1. — β. mont. *Huds.*: *Ed. Cat.* p. 1.

Heaths and hilly places; abundant. *Fl.* July. ♃. — Habit of the last, but taller. *Florets* larger and the awns protruded considerably beyond the calyx. *Valves* of the *cor.* as in the last two species.

5. A. *canéscens* L. (*grey Hair-grass*); panicle rather dense, florets shorter than the calyx, awn clavate shorter than the calyx, leaves setaceous. *E. Bot.* t. 1190. Corynephorus *Beauv.*: *Ed. Cat.* p. 4.

On the sandy sea-coasts of Norfolk and Suffolk. Jersey: *Christy* and *Babington*. *Fl.* July. ♃. — Remarkable in this genus for having its awn clavate, and bearing, at the joint, a tuft of hairs.

6. A. *caryophýllea* L. (*silvery Hair-grass*); panicle divaricated, florets scarcely villous at the base shorter than the cal., awn inserted below the middle jointed longer than the cal., leaves setaceous. *E. Bot.* t. 812; *Ed. Cat.* p. 1.

Gravelly hills and pastures, frequent. *Fl.* June, July. ♃. — 2—6 or 8 inches high. *Leaves* short, few. *Panicle* trichotomous. *Florets* silvery-grey. *Cal.-valves* nearly equal, lanceolate, the upper part pellucid and white. *Valves* of the *cor.* scabrous at the back, unequal, apex bifid.

7. A. *précox* L. (*early Hair-grass*); panicle somewhat spiked, florets scarcely villous at the base about as long as the cal., awn twisted inserted below the middle longer than the cal., leaves setaceous. *E. Bot.* t. 1296; *Ed. Cat.* p. 1.

Sandy hills and pastures. *Fl.* May, June. ☉. — 1—3 inches high. *Panicle* few-flowered, pale silvery-green. *Valves* of the *cal.* lanceolate, scabrous, when seen under a good glass; those of the *cor.* narrow, acuminate, scabrous, the point bifid.

16. Mélica *Linn.* Melic-grass.
(Tab. VIII. f. 16.)

Panicle lax. *Cal.* of 2 valves, about 2-flowered, with the rudiment of a third floret. *Cor.* 2-valved, awnless. *Fruit* free, covered by the cartilaginous *cor.* — Name: *Melica* or *Melliga*, given in Italy to the *Sorghum vulgare*, on account of the sweet flavour of its stem (*mel*, honey): applied by Linnæus to this somewhat allied genus.

1. M. *nútans* L. (*Mountain Melic-grass*); panicle nearly

simple racemed secund, spikelets drooping ovate 2-flowered. *E. Bot.* t. 1059; *Ed. Cat.* p. 8.

Woods in somewhat mountainous countries; especially in the north of England and Scotland. *Fl.* May, June. ♃. — One foot or more high, leafy. *Leaves* linear-lanceolate. *Cal.-glumes* ovate, convex, nerved, deep purple-brown, margin pale. *Valves* of the *cor.* cartilaginous, unequal, nerved, outer one large. Between the two perfect florets is the rudiment of a third, which is pedicellate, consisting of a 2-valved hardened *cor.* without either pistil or stamen.

2. M. *uniflóra* L. (*Wood Melic-grass*); panicle branched slightly drooping, spikelets erect ovate with only one perfect floret. *E. Bot.* t. 1058; *Ed. Cat.* p. 8.

Shady woods, frequent. *Fl.* May — July. ♃. — Imperfect floret on rather a long footstalk. *Leaves* broader than the last, and whole plant larger. *Scale* of one piece, orange-coloured, thick, "covered by the outer glume of the corolla:" *Wilson.*

3. M. *cærúlea* L. (*purple Melic-grass*); panicle erect subcoarctate, spikelets erect oblongo-cylindrical, floret much longer than the calyx. *E. Bot.* t. 750. Molinia *Schrank: Ed. Cat.* p. 9. — β. panicle pale green, spikelets fewer-flowered. *Ed. Cat.* p. 9. M. alpina *Don.* M. depauperata *Lindl.*

Wet heathy places and moors, frequent. — β. Clova Mountains. *Fl.* Aug. ♃. — Habit very different from the last, but scarcely distinguishable in generic character. *Culms* 1—2 feet high or more. All the *leaves*, which are long, linear, and acuminated, springing from the base or from a single joint immediately above it. *Panicle* from 2—8 inches in length, bluish-purple, rarely, and perhaps only when growing in much sheltered situations, green. *Cal.-valves* lanceolate, nearly equal. *Florets* generally 2 perfect and 1 sterile. *Anthers* large, purple. — Brooms are made of the culms in England, according to Withering; and in Skye, Lightfoot says, the fishermen twist them into excellent ropes for their nets.

17. Hólcus *Linn.* Soft-grass. (Tab. VIII. f. 17.)

Panicle lax. *Cal.* of 2 valves, nearly equal, 2-flowered. *Cor.* 2-valved; upper floret with stamens only and awned; lower, perfect and awnless. *Fruit* covered by the indurated *cor.* — Named ὁλκος, from ἑλκω, to *extract;* because it was supposed to have the property of drawing out thorns from the flesh.

1. H. *móllis* L. (*creeping Soft-grass*); cal.-valves acuminate, imperfect floret with an exserted geniculated awn, joints of the culm with a tuft of hairs, root creeping. *E. Bot.* t. 1170; *Ed. Cat.* p. 6.

Pastures and hedges, common. *Fl.* July. ♃. — Mr. Wilson well observes that this species is distinguished by the acute (or almost acuminated) calyx-glumes and downy joints of the culm.

2. H. *lanátus* L. (*Meadow Soft-grass*); cal.-valves rather obtuse mucronate, imperfect floret with a curved awn included

within the cal., no tuft of hairs at the joints, roots fibrous. *E. Bot.* t. 1169; *Ed. Cat.* p. 6.

Meadows, pastures, and woods, common. *Fl.* June, July. ♃. — Much resembling the last in general appearance, but clothed with a softer and more abundant pubescence.

18. Arrhenathérum *Beauv.* Oat-like Grass. (Tab. VIII. f. 18.)

Panicle lax. *Cal.* of 2 valves, 2-flowered: lowermost floret with stamens only and a long twisted awn above the base; upper one perfect with a short straight bristle below the point. — Named from αρρην, *male*, and αθηρ, an *awn*. This genus has altogether the habit of *Avena*, from which it differs in the number and structure of its florets.

1 A. *avenáceum* Beauv. (*common Oat-like Grass*). *Lindl. Syn.* p. 305; *Ed. Cat.* p. 2. Holcus avenaceus *Scop.*: *E. Bot.* t. 813. Avena elatior *Linn.* β. bulbos. *Dum.*: *Ed. Cat.* p. 2.

Hedges and pastures, frequent. *Fl.* June, July. ♃. — I am not aware that more than one species exist of this genus. The *Avena precatoria* of Thuill., *Avena nodosa* of Cullum, *Arrh. bulbosum* Dunal and Lindl., are but varieties with a knotted or tuberous base to the stem. 2—3 feet high. *Panicle* long, loose. *Spikelets* greenish-brown.

19. Hieróchloe *Gmel.* Holy-grass. (Tab. VIII. f. 19.)

Panicle mostly lax. *Cal.* of 2 valves; 3-flowered. *Cor.* of 2 valves: the *lateral florets* triandrous. *Pistil* 0; *terminal* (or *central*) *one* perfect, diandrous. (*Br.*) *Cor.* permanently membranous. Fruit free. (*Sm.*) — Named from ιερος, *sacred*, and χλοα, or χλοη, a *grass*: so called by Gmelin; because, in some parts of the Prussian dominions, it is dedicated to the Virgin Mary, and strewed before the doors of the churches on festival days, as the *Sweet-sedge* (Acorus Calamus) is in England.

1. H. *boreális* R. et. S. (*Northern Holy-grass*); panicle subsecund, peduncles glabrous, florets awnless, outer valves of the cor. ciliated at the margin. *Hook. in E. Bot. Suppl.* t. 2641; *Ed. Cat.* p. 6. Holcus odoratus *Linn.*, *Sm.* Holc. borealis *Schrad.*

In a narrow mountain valley, called *Kella*, in Angus-shire: *G. Don. Fl.* July. ♃. — A valuable discovery of the late acute Mr. G. Don. About 1 foot high, glabrous. *Leaves* linear-acuminate. *Panicle* brownish, glossy. *Spikelets* broadly ovate. *Cal.-valves* ovate, acute, rather unequal, sometimes a little serrated at the point. *Florets* rather longer than the *cal.* and the outer valves of a firmer texture, scabrous when highly magnified, distinctly fringed at the margin, the point sharp, but not awned. *Central floret* the smallest. Smell resembling that of *Anthoxanthum odoratum*. In Iceland it is so plentiful as to be used by the people to scent their apartments and clothes.

20. Seslέria *Linn.* Moor-grass. (Tab. VIII. f. 20.)

Panicle spiked. *Cal.* of 2 valves, nearly equal, somewhat awned. *Cor.* of 2 valves: the outer jagged and awned; the inner bidentate. *Fruit* free. — Named from *Leonard Sesler*, an Italian physician and botanist.

1. S. *cærúlea* Scop. (*blue Moor-grass*); panicle spiked ovate bracteated, outer valve of the cor. with one short terminal awn. *E. Bot.* t. 1613; *Ed. Cat.* p. 13. Cynosurus *L.*

Mountains in the north of England and Scotland, especially abundant in limestone regions. *Fl.* April—June. ♃. — One of our earliest grasses, and a very beautiful one. The *roots* much tufted; plants 6—12 or 18 inches high. *Leaves* linear, obtuse. *Spike* of a shining bluish-grey, with large yellow *anthers* tipped with purple. *Spikelets* generally in pairs, oblong-ovate, the lower ones with an ovate ciliated and toothed bractea at the base. *Cal.-valves* ovato-lanceolate, 3-toothed, middle tooth lengthened into an awn and often bifid, pubescent at the keel and margin. *Florets* longer than the cal. *Valves* of the *cor.* oblong-ovate: *ext. one* ribbed, pubescent and ciliated or jagged with about 5 teeth, the middle tooth lengthened into a short awn; *int.* valve bifid at the point.

21. Pánicum *Linn.* Panick-grass. (Tab. VIII. f. 21.)

Panicle spiked; *spikes* compound. *Cal.* 2-valved, unequal, 2-flowered: *ext. valve* minute, sometimes obsolete. *Florets* dissimilar: *ext.* with *anthers* only or *neuter*, 1—2-valved; *ext. valve* with the texture of the calyx; *int.* perfect, 2-valved, cartilaginous, enveloping, and somewhat adhering to, the fruit. (*Br.*) — Named from *panis, bread;* the seeds of some species being used for bread.

1. *P. *Crus-galli* L. (*loose Panick-grass*); spikes alternate secund divided or simple, florets imbricated, the cal. and ext. valve of the cor. of the neuter floret hispid awned or mucronated, int. valve of the cor. of the perfect floret with a hispid mucro, rachis hispid. *Br.: E. Bot.* t. 876. P. Crus-corvi *Linn.* Echinochloa *Beauv.*, *Lindl.* Opliomenus Crus-galli *Kunth: Ed. Cat.* p. 9.

Fields near London. *Fl.* July. ⊙.

22. Setária *Beauv.* Bristle-grass. (Tab. VIII. f. 22.)

Panicle in a dense, cylindrical *spike*. *Flowers* as in *Panicum*, only subtended by a *bristly involucre*, which includes 2—3 *florets*. — Named from *seta*, a *bristle*. — To this genus the true *Millets* belong.

1. *S. *verticilláta* Beauv. (*rough Bristle-grass*); panicle spiked, lobed below, branches whorled, bristles of the involucre

rough with reversed teeth. *Ed. Cat.* p. 13. Panicum verticillatum *L.: E. Bot.* t. 874.

In cultivated fields, about London and Norwich. *Fl.* July, Aug. ⊙.

2. *S. *víridis* Beauv. (*green Bristle-grass*); panicle spiked continuous, bristles of the involucre rough with erect teeth. *Ed. Cat.* p. 13. Panicum viride *L.: E. Bot.* t. 875.

Fields, about London and Norwich. *Fl.* July, Aug. ♃.

††† *Calyx* 3- *or* (*mostly*) *many-flowered.* (Tab. VIII. f. 23, 24. and Tab. IX. f. 25—31.) Gen. 23—31.

23. Póa *Linn.* Meadow-grass. (Tab. VIII. f. 23.)

Panicle lax. *Cal.* 2-valved, shorter than the florets. *Cor.* 2-valved, valves subovate, bluntish, awnless. *Fruit* free. — Name: πoα, *grass* or *pasturage*, from παω, to *feed;* the whole genus affording an abundant pasturage for cattle.

* *Spikelets linear or subcylindrical.* (Glyceria *Sm.*, and in part *Br.*)

1. P. *aquática* L. (*Reed Meadow-grass*); panicle erect very much branched, spikelets linear of about 6 obtuse florets which have 7 ribs. *E. Bot.* t. 1315. Hydrochloa *Hartman, Lindl.* Glyceria aquatica *Sm.: Ed. Cat.* p. 6.

Sides of rivers, ponds, and ditches. *Fl.* July, Aug. ♃. — 4—6 feet high, erect. *Leaves* linear-lanceolate, rough. *Ligule* short, obtuse. *Cal.-valves* small, ovate, obtuse, membranous, smoothish. *Ext. valves* of *cor.* twice as large as the calyx; *int.* narrower and bifid at the point.

2. P. *flúitans* Scop. (*floating Meadow-grass*); panicle nearly erect slightly branched, spikelets linear appressed of from 7 to 11 obtuse florets which have seven ribs with short intermediate ones at the base, root creeping. *E. Bot.* t. 1520. Festuca *L.* Glyceria fluitans *Br.: Ed. Cat.* p. 6.

Ditches and stagnant waters, abundant. *Fl.* July, Aug. ♃. — *Culms* 1—3 feet high, thick and succulent. *Leaves* linear-lanceolate, acute. *Ligule* oblong, pointed. *Peduncle* subsecund, very long, slender. *Cal.-valves* unequal, small, ovate, membranous, obtuse. *Cor. valves* ovate-oblong, thrice as long as the *cal.;* outer ones scabrous. The scale is of 1 thick fleshy piece, which is the principal character of Mr. Brown's genus *Glyceria.* — This species is found in New Holland. It yields the *Manna-seeds* of our shops, which are gathered abundantly in Holland, where, as well as in Poland and Germany, they are used for food.

3. P. *marítima* Huds. (*creeping Sea Meadow-grass*); panicle erect subcoarctate (rigid), spikelets linear of about 5 obtuse florets which are obsoletely 5-nerved, leaves convolute, root creeping. *E. Bot.* t. 1140. Sclerochloa *Lindl.: Ed. Cat.* p. 12.

Sea-coast, frequent. *Fl.* July, Aug. ♃. — 8—12 inches high, rigid, glaucous. *Leaves* involute, somewhat pungent. *Ligule* ovate, bluntish. *Glumes* all firm, cartilaginous, purplish. *Cal.-valves* nearly as large as the *cor.*, with mostly 3 ribs. *Florets* hairy at the base.

4. P. *distans* L. (*reflexed Meadow-grass*); panicle spreading, branches at length deflexed, spikelets linear of about 5 obtuse florets which are obsoletely 5-nerved, leaves plane, root fibrous. *E. Bot.* t. 986. Sclerochloa distans, *Ed. Cat.* p. 12.

Sandy ground, principally near the sea. Near Dublin. *Fl.* July, Aug. ♃. — One foot high. *Leaves* linear, plane, not pungent. *Ligule* short, obtuse. Branches of the *panicle* singularly deflexed, slender. *Spikelets* much shorter than in the last species. *Glumes* membranous, softer. *Cal.-valves* much smaller than the *cor.*, unequal, larger one obscurely 3-nerved. Allied to the last, but very distinct.

5. P. *Borréri* (*Mr. Borrer's Sea Meadow-grass*); panicle spreading, in fruit ascending and patent, spikelets linear of about 4 florets, florets free, outer glume of the corolla obsoletely 5-nerved with a minute point. Glyceria Borreri *Bab. in E. Bot. Suppl.* t. 2797. Sclerochloa Borreri, *Ed. Cat.* p. 12.

Brackish places in the south-east of England, often in company with *P. procumbens* and *P. distans*: *Mr. Borrer, Mr. Babington.* *Fl.* — ♃ ? — "May be distinguished from *P. distans* by its ascending branches when in fruit, the spikes seldom more than 4-flowered, the exterior glume of the corolla pointed, and its dorsal nerve extending to the apex; — from *P. procumbens* by its patent branches, its spikelets not more than half the size, its exterior pointed glume of the corolla and the erect stalk; — from *P. maritima* by the patent branches, its spikes about half the size, and the flat leaves." *Bab.*

6. P. *procúmbens* Curt. (*procumbent Sea Meadow-grass*); panicle compact ovate-lanceolate disticho-secund (rigid), spikelets linear-lanceolate of about 4 florets which are 5-ribbed. *E. Bot.* t. 532. Sclerochloa *Beauv., Lindl.: Ed. Cat.* p. 12.

Salt marshes in various places, apparently not uncommon. *Fl.* June —Aug. ☉. — *Culms* procumbent, 6—8 inches long, glaucous. *Leaves* linear, obtuse. *Ligule* short, very blunt. *Panicle* about 2 inches long, branches patent, distichous, their *spikelets* secund. *Cal.-valves* smaller than the floret, obtuse, strongly ribbed. *Florets* oblong, distant upon the rachis. Inner valve of *cor.* membranous, bifid at the point.

7. P. *rígida* L. (*hard Meadow-grass*); panicle lanceolate disticho-secund (rigid), spikelets linear acute of about 7 florets which are almost ribless, root fibrous. *E. Bot.* t. 1371. Sclerochloa *Beauv., Lindl., Link: Ed. Cat.* p. 12.

Walls, rocks, and dry barren soils, frequent. *Fl.* June. ☉. — Whole plant very rigid and wiry, 3—5 inches long, ascendent or erect. *Leaves* rigid, linear, setaceous. *Ligule* oblong, jagged. *Rachis* angled, sometimes at once bearing the spikelets (when it much resembles *Triticum loliaceum*), but more usually throwing out branches. *Cal.-valves* nearly as long as the *cor.*, ribbed. *Florets* almost entirely ribless, linear-oblong, rather distant, smooth, bluntish.

8. P. *compréssa* L. (*flat stemmed Meadow-grass*); panicle subsecund spreading (afterwards subcoarctate), spikelets oblong of 5—7 obtuse florets connected by a web, culm compressed, root creeping. *E. Bot.* t. 365; *Ed. Cat.* p. 15.

On walls, and in dry barren ground, frequent. *Fl.* June, July. ♃.— One foot or more high, rather glaucous. *Culms* compressed, procumbent at the base. *Leaves* short, linear, acute. *Ligule* very short, blunt. *Panicle* not much branched. *Cal.-valves* ribbed, acute. *Valves* of *cor.* obtuse, outer one very obsoletely ribbed; the lower florets webbed at the base. — Intermediate, as it were, between the present and the following division.

** *Spikelets ovate or nearly so.* (Poa *Sm.*)

9. P. *alpína* L. (*alpine Meadow-grass*); panicle diffuse, spikelets ovate of 4—5 acute florets hairy below (but not webbed), leaves broadly linear obtuse, ligule of the upper leaves oblong acute, of the lower ones short obtuse. *E. Bot.* t. 1003; *Ed. Cat.* p. 10. *β. γ.*, *Ed. Cat.* p. 10. — *β. glomerata;* spikelets densely crowded.

Extremely abundant on the lofty mountains of Scotland and Wales, and very generally viviparous. — *β.* Banks of the Esk: *G. Don. Fl.* July, Aug. ♃. — 6—12 inches high, nearly erect. *Leaves* short, linear, obtuse, with a very small mucro. *Spikelets* rather large, close. *Cal.-valves* ovate-lanceolate, much compressed; dorsal rib scabrous, terminating in a very short point or awn, with a short lateral rib or nerve at the base. *Ext. valves* of the *cor.* ovate-lanceolate, acute; dorsal rib scabrous, no lateral ones: lower part villous, upper part glabrous, purple, margin diaphanous: *int. valves* notched or bifid at the extremity.

10. P. *láxa* Hænk. (*wavy Meadow-grass*); panicle contracted lax slightly drooping, spikelets ovate of about 3 acute florets connected by a web, leaves narrow linear acute, ligules all lanceolate. *Ed. Cat.* p. 10. Poa flexuosa, *E. Bot.* t. 1123.

Found on Ben Nevis by the late *Mr. John Mackay*. *Fl.* July. ♃.— A very slender subglaucous grass, scarcely able to support the weight of its own *panicle*, which consequently droops slightly. *Leaves* more numerous than in *P. alpina*, and much narrower. *Florets* very obscurely ribbed, all very acute, green and purple, with diaphanous margins. *Cal.-valves* nearly equal, pubescent on the keel, as is the *cor.*, which is also webbed.

11. P. *bulbósa* L. (*bulbous Meadow-grass*); panicle close subspicate, spikelets ovate 4-flowered, florets downy at the keel connected by a web, leaves with a white narrow serrated cartilaginous margin, stems swollen at the very base. *E. Bot.* t. 1071; *Ed. Cat.* p. 10.

East and south of England, principally on sandy sea-shores. *Fl.* Apr. May. ♃.— A singular and very distinctly marked species, soon withering after flowering, and then its bulbs are blown about in large quantities on the surface of the sand. It forms a great part of the herbage on the *Denes* at Yarmouth.

12. P. *triviális* L. (*roughish Meadow-grass*); panicle diffuse, spikelets oblong-ovate of about 3 florets which are acute 5-nerved connected by a web, culms and sheaths roughish, ligule oblong, root fibrous. *E. Bot.* t. 1072; *Ed. Cat.* p. 10.

Meadows and pastures, common. *Fl.* June, July. ♃. — 1—2 feet

high. *Leaves* linear, acute. *Panicle* much branched. — An excellent grass for pasturage and for hay: as is the following species.

13. P. *praténsis* L. (*smooth-stalked Meadow-grass*); panicle diffuse, spikelets oblong-ovate of about 4 florets which are acute 5-nerved webbed, culm and sheath smooth, ligule short, root creeping. *E. Bot.* t. 1073; *Ed. Cat.* p. 10. — β. *angustifolia;* smaller and with narrower leaves. *Ed. Cat.* p. 10. P. angustifolia *Linn.* — γ. *subcœrulea;* smaller and glaucous. *Ed. Cat.* p. 10. P. humilis *Ehrh.* P. subcærulea, *E. Bot.* t. 1004.

Meadows and pastures, frequent. — β. "in woods." — γ. on walls or dry places, especially in alpine countries. *Fl.* June, July. ♃. — Allied to the last, but very constant to the character above given. — β. and γ. appear to be starved states of the plant.

14. P. *ánnua* L. (*annual Meadow-grass*); panicle subsecund divaricated, spikelets oblong-ovate of about 5 florets which are a little remote 5-ribbed destitute of web, culm ascending, compressed, root fibrous. *E. Bot.* t. 1141; *Ed. Cat.* p. 10. β. supina, *Ed. Cat.* p. 10.

Meadows and pastures, and by road-sides, everywhere. *Fl.* all spring and summer. ☉. — *Culms* 6—10 inches long, below prostrate and throwing out roots. *Leaves* distichous, linear, rather blunt, flaccid, often waved, bright-green. *Ligule* oblong, acute. *Cal.-valves* very unequal, ovate-lanceolate, rough at the back, nerved. *Ext. valve* of *cor.* ovate-lanceolate, acute, white and diaphanous at the margin.

15. P. *nemorális* L. (*Wood Meadow-grass*); panicle slender slightly leaning one way lax attenuate, spikelets ovate-lanceolate of about 3 rather distant slightly webbed florets, ligule short truncate, culms subcompressed and sheath glabrous, root scarcely creeping. *E. Bot.* t. 1265; *Ed. Cat.* p. 10. — β. *glauca;* smaller and everywhere glaucous. *Hook. Fl. Scot.* i. p. 35. P. glauca, *E. Bot.* t. 1720. P. cæsia, *E. Bot.* t. 1719; *Ed. Cat.* p. 10. P. glauca β. *Wahl.*

Common in woods and thickets — β. abundant on the Welsh and Scotch alps. *Fl.* June, July. ♃. — 1—3 feet high, slender and delicate in all its parts. *Leaves* narrow, linear, acute. *Panicle* with the branches almost erecto-patent. *Spikelets* scattered. *Cal.-valves* unequal, ovate-lanceolate, acute, rather obscurely ribbed. *Ext. valve* of the *cor.* lanceolate, obscurely ribbed, pubescent on the keel and hairy at the base, very slightly webbed. *Inner* valves, as I believe, in most, if not all, of the genus, bifid at the point. — Sir J. E. Smith has, in *E. Fl.*, united his *P. cæsia* with *P. glauca;* making it his *var.* β.; and now when I learn from the same author that it is a plant gathered by Mr. Turner and myself on Ben Lawers, I am more persuaded than ever that it is but an alpine state of *P. nemoralis.* Mr. Wilson thinks the same, and founds his opinion on a most careful examination of specimens collected in Wales and Scotland.

24. Triódia *Br.* Heath-grass.
(Tab. VIII. f. 24.)

Panicle racemed. *Cal.* 2-valved, many-flowered, nearly

equal. *Cor.* 2-valved; *ext.* one with three nearly equal teeth, the middle one straight.— Named from τρεις, *three*, and οδους, a *tooth*.

1. T. *decúmbens* Beauv. (*decumbent Heath-grass*); panicle of few racemed spikelets, cal. as long as the florets, ligule a tuft of hairs. Poa decumbens, *E. Bot.* t. 131. Festuca *L.* Danthonia decumbens, *Ed. Cat.* p. 4.

Abundant in dry mountain-pastures, heaths, and moors. *Fl.* July. ♃. — 1 foot long, procumbent; flowering culms only erect. *Leaves* linear, acuminate, hairy as well as the sheaths. *Cal.-valves* nearly equal, lanceolate, acute, nerved with broad thin margins, scabrous on their keels. *Ext. valve* of the *cor.* ovate, nerved or ribbed, having a small tuft of hairs on each side at the base; apex with three teeth. *Int. valve* obtuse, entire at the point, ciliated at the angles of the fold. — In habit very distinct from *Poa*.

25. Bríza *Linn.* Quaking-grass. (Tab. IX. f. 25.)

Panicle lax. *Cal.* 2-valved. *Cor.* 2-valved, awnless; *ext.* one ventricose; *int.* small and flat. *Fruit* adnate with the *cor.* —Name: βριζα, some kind of corn; probably from βριθω, to *droop* or *bend down*, as do the spikelets, which are most delicately suspended.

1. B. *média* L. (*common Quaking-grass*): spikelets broadly ovate of about 7 florets, cal. shorter than the florets. *E. Bot.* t. 340; *Ed. Cat.* p. 2.

Meadows and pastures, frequent. *Fl.* June. ♃. — Whole plant very elegant. *Culms* slender, 1 ft. or more high. *Leaves* short, linear-acuminate. *Branches* of the *panicle* thread-shaped, divaricating, purple. *Spikelets* tremulous with the slightest breeze, very smooth, shining purple, more or less green, or greenish-white, at the edges. *Cal.-valves* very concave, subcompressed. *Ext. valve* of *cor.* much like the *cal.*, but rather smaller; *int.* one minute, resembling a flat scale.

2. B. *mínor* L. (*small Quaking-grass*); spikelets triangular about 7-flowered, cal. longer than the florets. *E. Bot.* t. 1316; *Ed. Cat.* p. 2.

Fields in the extreme south of England, very rare. About Bath; in Cornwall, Guernsey, and Jersey. *Fl.* July. ☉. — Whole plant much smaller than the last. *Stipules* elongated, acute.

26. Dáctylis *Linn.* Cock's-foot-grass. (Tab. IX. f. 26.)

Panicle with the secondary branches short and very dense, subsecund. *Cal.* of 2 unequal valves, the larger one keeled. *Cor.* of 2 lanceolate scarcely awned valves, enclosing the *fruit.* —Except in habit this genus is scarcely distinguishable from *Festuca.*—Name: δακτυλος, a *finger*.

1. D. *glomeráta* L. (*rough Cock's-foot-grass*); panicle crowded

secund, cor. acuminate somewhat awned. *E. Bot.* t. 335; *Ed. Cat.* p. 4.

Way-sides, meadows, and woods, abundant. *Fl.* July. ♃. — 1—2 feet high. *Leaves* rather broadly linear, acuminate, scabrous. *Panicles* secund. *Spikelets* of 3—4 florets, thickly clustered on the branches, clusters ovate. *Valves* of the *cal.* membranous, smaller than the *cor.*, lanceolate, acuminate, unequal, glabrous, scabrous at the back of the valves, which are more or less obliquely keeled. *Ext. valve* of *cor.* subcartilaginous, lanceolate, much compressed, scabrous, ribbed, ciliated at the keel, with a short awn at the point: *int.* bifid at the extremity. — Said to be advantageously cultivated for cattle.

27. Cynosúrus *Linn.* Dog's-tail-grass. (Tab. IX. f. 27.)

Panicle spiked. *Cal.* 2-valved, equal, awned, having a pectinated *involucre*. *Cor.* 2-valved, valves linear-lanceolate; *int.* awned below the extremity or awnless. — Named from κυων, a *dog*, and ουρα, a *tail*; from the shape of its spike.

1. C. *cristátus* L. (*crested Dog's-tail-grass*); raceme spiked linear, florets with a very short awn. *E. Bot.* t. 316; *Ed. Cat.* p. 4.

Dry pastures, frequent. *Fl.* July. ♃. — 1—1½ foot high, slender. *Leaves* narrow, linear, acuminate. *Raceme* secund. *Involucres* beautifully pectinated, one at the base of each spikelet, their divisions linear, acute, greenish, subglumaceous, a little curved, rough. *Spikelets* 3—5-flowered. *Cal.-valves* lanceolate, nearly equal, membranous, rough at the keel, as long as the floret. *Ext. valve* of *cor.* lanceolate, obscurely nerved, green, scabrous, especially at the keel, terminating in a short rough awn; *int.* white, bifid, pubescent at the angles of the fold. — A valuable grass.

2. C. *echinátus* L. (*rough Dog's-tail-grass*); raceme in an ovate spike, florets with awns as long as the cor. *E. Bot.* t. 1333; *Ed. Cat.* p. 4.

Sandy sea-shores of the extreme south of England, as Kent and Sussex; but principally in Jersey. *Fl.* July. ☉.

28. Festúca *Linn.* Fescue-grass. (Tab. IX. f. 28.)

Panicle lax, or coarctate. *Cal.* of 2 unequal valves. *Cor.* of 2 lanceolate valves; *ext.* acuminate or awned at the summit. — Named from the Celtic word *fest*, according to Théis, which signifies *food, pasturage*.

1. F. *ovína* L. (*Sheep's Fescue-grass*); panicle subsecund subcoarctate, spikelets oblong of about 4—5 florets with short awns, culms square upward, leaves setaceous. *E. Bot.* t. 585; *Ed. Cat.* p. 5.—β. (*Sm.*) *rubra*; panicle purplish. *Ed. Cat.* p. 5. F. rubra *With.* — γ. (*Sm.*) *cæsia*; plant glaucous. *E. Fl.*; *Ed. Cat.* p. 5. F. cæsia, *E. Bot.* t. 1917. — δ. (*Sm.*) *tenuifolia*; leaves

longer and very slender more numerous, florets acuminate awnless. *Ed. Cat.* p. 5. F. tenuifolia *Sibth.*—ε. *vivipara;* plant taller, florets viviparous. *Ed. Cat.* p. 5. F. ovina β. *Linn., Hook.* γ. Schrad. F. vivipara, *E. Bot.* t. 1355; *E. Fl.* vol. i. p. 140.

Abundant on dry elevated pastures.—ε. Frequent on the mountains of Wales and Scotland. *Fl.* June, July. ♃.—*Leaves* mostly short, often curved, smooth, or slightly scabrous, much tufted and affording excellent food for sheep. *Culm* 4—8 inches or a foot high, in the upper part more or less distinctly 4-sided. *Cal.-valves* much shorter than the *cor.*, acute, subglabrous. *Cor. ext. valve* more or less glabrous, sometimes pubescent upward or even hairy (*F. hirsuta* Host), terminated by an awn, which, though varying in size, and in δ. obsolete, at the utmost does not exceed half the length of the valve. Whole plant more or less glaucous, and having a purple tint in the spikelets. *F. vivipara* Sm. affords no character by which it may be distinguished from *F. ovina.* I should be more inclined to consider the *F. tenuifolia* of Sibth. distinct, than any other of the *vars.*

2. F. *duriúscula* L. (*hard Fescue-grass*); panicle subsecund subcoarctate, spikelets oblong of about 6 florets with short awns, stem-leaves nearly plane, radical ones subsetaceous, root fibrous, *E. Bot.* t. 470.; *Ed. Cat.* p. 5.

Pastures and waste ground. *Fl.* June, July. ♃.— The *leaves* on the stem are sometimes convolute, and then they appear setaceous. 1—1½ feet high; by which size, and its stouter habit, it is better distinguished from *F. ovina,* than by any character I can discover. It is possible that viviparous states of this may be confounded with the *F. vivipara* of Smith.

3. F. *rúbra* L. (*creeping Fescue-grass*); "panicle unilateral spreading, florets longer than their awns, leaves downy on their upper side, more or less involute, root extensively creeping." *E. Bot.* t. 2056; *Ed. Cat.* p. 5. β. *DC.* sabulicola: *Ed. Cat.* p. 5. F. duriuscula β. *Hook. Fl. Scot.* i. p. 38.

Light sandy pastures, near the sea, plentiful; and "in mountain pastures and alpine precipices." *Fl.* July. ♃.—In deference to the opinion of the lamented author of *E. Bot.* and other able botanists, I again restore this plant, which I had before considered a *var.* of *F. duriuscula,* to the rank of a species. At the same time I must observe that its only character exists in the creeping root.

4. F. *bromoídes* L. (*barren Fescue-grass*); panicle secund racemed, florets shorter than the awn, monandrous, culm above leafless. *E. Bot.* t. 1411; *Ed. Cat.* p. 5.

Dry pastures and on walls; less frequent in Scotland, but not rare about Edin. *Fl.* June. ☉. (♂. *Schrad.*) — 6—8 inches high. *Leaves* linear, setaceous, complicate. *Cal.-valves* very unequal, lanceolate acuminate, nerved, rough at the keel. *Florets* about 6 in each spikelet. *Ext. valve* of *cor.* linear-lanceolate, scabrous, tapering into a straight awn, thrice the length of the valve.

5. F. *Myúrus* L. (*Wall Fescue-grass*); panicle secund elongated contracted, florets shorter than the awn monandrous, culm leafy in its upper part. *E. Bot.* t. 1412; *Ed. Cat.* p. 5.

Walls and barren places ; frequent in England, not common in Scotland. *Fl.* June. ☉. — Much resembling the last, but taller. 1 ft. high. *Leaves* shorter, their *sheaths* longer, and springing even from the upper part of the culm. *Panicle* often 4—5 inches in length. *Cal.-valves* and *florets* narrow, rather more scabrous than in *F. bromoides ;* awns longer.

6. F. *uniglúmis* Soland. (*single-glumed Fescue-grass*) ; panicle simple erect two-ranked subsecund raceme, one valve of the calyx obsolete. *E. Bot.* t. 1430 ; *Ed. Cat.* p. 5.

On the sandy sea-coast, principally of Sussex. On the coasts of Essex, Suffolk, Dorsetshire, and Anglesea. *Fl.* June. ☉. (♂. *Sm.*) — This plant is remarkable for the suppression of one of the valves of its *cal.*, by which the species is at once known.

7. F. *Calamária* Sm. (*Reed Fescue-grass*) ; panicle subsecund much branched spreading nearly erect, spikelets oblong awnless 3—5-flowered, leaves linear-lanceolate. *E. Bot.* t. 1005. Schenodorus sylvaticus *Beauv., Lindl.* F. sylvatica *Vill. : Ed. Cat.* p. 5. β. decidua *Bell : Ed. Cat.* p. 5. β. minor, *E. Fl.* vol. i. p. 146. F. decidua, *E. Bot.* t. 2266.

Mountain woods, not uncommon. *Fl.* July. ♃. — 2—3 ft. high, with broad *leaves*. *Cal.-valves* narrow, linear-lanceolate, very unequal, smaller one single-nerved, larger with 3 nerves. *Florets* rather distant on the rachis. *Ext. valve* of *cor.* scabrous, lanceolate-acuminate.

8. F. *loliácea* Huds. (*spiked Fescue-grass*) ; raceme spiked distichous, spikelets linear-oblong nearly-sessile remote, florets cylindrical awnless, outer valve of cor. obtuse. *E. Bot.* t. 1821 ; *Ed. Cat.* p. 5. Schenodorus *Dumort., Lindl.*

Moist pastures and meadows, not unfrequent. *Fl.* June, July, ♃.— 2 feet high. *Leaves* few, short, linear-acute. *Racemes* 2—5 inches long ; *rachis* flexuose ; *spikelets* nearly sessile, especially the upper ones, 5—6-flowered. *Cal.-valves* unequal, lanceolate-acute, 7-ribbed. *Outer valves* of the *cor.* ovate-lanceolate, nerved, diaphanous at the apex and obtuse (hence scarcely agreeing with the generic character) ; slightly scabrous only at the nerves.

9. F. *elátior* L. (*tall Fescue-grass*) ; panicle patent very much branched, branchlets scabrous geminate, spikelets linear-lanceolate 5—10-flowered, florets cylindrical awnless, leaves linear-lanceolate, root creeping. *E. Bot.* t. 1593 ; *Ed. Cat.* p. 5. Schenodorus *Lindl.* Festuca pratensis *Huds. : E. Bot.* t. 1592.

Moist meadows, banks of rivers, &c. ; common. *Fl.* June, July. ♃. Distinguished at first sight from the preceding by its *panicled* (not spiked) *raceme* ; also by the *florets*, which, though much resembling the last, have their outer valve more acute. Mr. Hewett Watson, however, is of opinion that the *F. pratensis* of Huds. should be rather united to *F. loliacea* than to *F. elatior.*

29. Brómus *Linn.* Brome-grass.
(Tab. IX. f. 29.)

Panicle lax. *Cal.* of 2 valves, many-flowered. *Cor.* of 2

lanceolate *valves; ext.* one awned below the bifid extremity. (Inner valve generally fringed at the folds. *Sm.*) — Named from βρωμος, given by the Greeks to a kind of *oat*, and that again from βρωμα, *food*.

1. B. *gigánteus* Vill. (*tall Brome-grass*); panicle branched drooping towards one side, spikelets lanceolate compressed, florets shorter than the awn, leaves linear-lanceolate ribbed. *Linn.* — Festuca gigantea, *E. Bot.* t. 1820; *Ed. Cat.* p. 5. — β. triflorus; panicle more erect slenderer with 3 florets, leaves narrower. *Ed. Cat.* p. 5; *E. Fl.* v. i. p. 144. Festuca triflora, *E. Bot.* t. 1918.

Shady woods and moist hedges. — β. in Norfolk, and near Forfar in Scotland: probably not unfrequent. *Fl.* July, Aug. ♃. — A sea-side grass, 3—4 feet high, with broad *leaves*, having the habit and essential character of *Bromus*, but sometimes arranged by authors with *Festuca*. *Panicle* large. *Spikelets* with 3—6 *florets*. *Cal.-valves* very unequal, larger ones with 3 ribs. *Outer valve* of *cor.* lanceolate, obscurely ribbed, nearly glabrous, membranous at the edge upward. *Awn* very long, inserted a little below the bifid point.

2. B. *ásper* L. (*hairy Wood Brome-grass*); panicle branched drooping, spikelets linear-lanceolate compressed, florets remote subcylindrical hairy longer than the straight awn, leaves uniform the lower ones hairy. *E. Bot.* t. 1172; *Ed. Cat.* p. 2.

Moist woods and hedges. *Fl.* June, July. ☉ or ♂. *Sm.* (♃. *Schrad.*) — 4—6 feet high; *leaves* broad.

3. B. *stérilis* L. (*barren Brome-grass*); panicle drooping slightly branched, spikelets linear-lanceolate, florets remote subcylindrical scabrous shorter than the straight awn, leaves pubescent. *E. Bot.* t. 1030; *Ed. Cat.* p. 2.

Waste ground, fields, and hedges; common. *Fl.* June, July. ☉. — 2 feet high. Remarkable for its long, narrow, much-awned and drooping *spikelets*.

4. B. *diándrus* Curt. (*upright annual Brome-grass*); panicle erect slightly branched, spikelets linear-lanceolate, florets remote subcylindrical subscabrous about as long as the straight awn, stamens 2 (3, *Schrad.*), leaves subglabrous. *E. Bot.* t. 1006. B. Madritensis *Linn.*: *Ed. Cat.* p. 2. — β., *Ed. Cat.* p. 2.

Rare, on sandy barren wastes; principally in the south of England. About Kinross, Scotland. Inverkeithing: *Rev. A. Robertson. Fl.* June, July. ☉. — One foot high. Allied to *B. sterilis*; but the *panicle* is smaller, erect or erecto-patent, often purplish.

5. B. *máximus* Desf. (*great Brome-grass*); "panicle erect lax at length nodding, spikelets lanceolate downy, after flowering upon long stalks, awns 2 or 3 times as long as the glumes, leaves downy on both sides." *Bab. in Eng. Bot. Suppl.* t. 2820; *Prim. Fl. Sarn.* p. 115; *Ed. Cat.* p. 2.

On the sands of St. Aubin's Bay; the Grève d'Azette and the Quenvais, Jersey: *Babington and Christy. Fl.* June, July. ⊙. — "Distinguished by its long awns:" *Bab.*

6. B. *velutínus* Schrad. (*downy Rye Brome-grass*); "panicle spreading scarcely subdivided, spikelets ovate-oblong of 10—15 crowded elliptical downy florets, awns as long as the glumes, leaves slightly hairy." *Sm.: E. Fl.* v. i. p. 152; *Ed. Cat.* p. 2. B. multiflorus, *E. Bot.* t. 1884.

Corn-fields, between Edinburgh and Newhaven: *Sir J. E. Smith*, 1782. *Fl.* June, July. ⊙.

7. B. *móllis* L. (*soft Brome-grass*); panicle close ovate erect in fruit, slightly branched, simple peduncles shorter than the crowded ovate somewhat compressed pubescent spikelets, flowers closely imbricated, awn straight about as long as the glume, sheaths of the leaves pubescent or hairy. *H. Wats. in Hook. Lond. Journ of Bot.* v. i. p. 84; *E. Bot.* t. 1078 (*good*); *Ed. Cat.* p. 2. — β. spikelets and sheaths of the leaves densely clothed with hairs. *Ed. Cat.* p. 2.

Meadows, pastures, banks, road-sides, fields, &c., every where. — β. sandy ground, Lizard, Cornwall: *Rev. C. Johns. Fl.* June. ♂. — 1—2 feet high. *Panicle* 2—3 inches long. *Spikelets* standing nearly erect. *Florets* 5—10. *Ext. valve* of the *cor.* convex; by no means forming such cylindrical florets as in the two last species. I had considered var. β. as belonging to the preceding (of which, indeed, the only published station is that above given), but Mr. Borrer refers it unhesitatingly to *B. mollis.*

8. B. *racemósus* L.? (*smooth Brome-grass*); panicle elongated erect in fruit, peduncles nearly simple about equal to the ovate subcompressed glabrous spikelets, florets imbricated compressed, awn straight about as long as the glume, sheaths of the leaves slightly hairy. *H. Wats. in Hook. Lond. Journ. of Bot.* v. i. p. 84; *E. Bot.* t. 1079. B. mollis γ., *Ed. Cat.*

Meadows and pastures. *Fl.* June, July. ⊙. (♂. *Schrad.*) — I fear scarcely different from the preceding, except in being more glabrous. From *B. arvensis* and *secalinus* and *commutatus* it is best known by its more erect panicle and more closely imbricated flowers.

9. B. *commutátus* Schrad. (*tumid Field Brome-grass*); panicle loose slightly drooping in fruit, lower peduncles often elongated and branched, simple peduncles equalling or exceeding in length the oblong-lanceolate glabrous spikelets, flowers loosely imbricated, when in fruit the glumes only slightly overlapping at their edges near the base, awn straight about as long as the glume, leaves and their sheaths hairy. *H. Wats. in Hook. Lond. Journ. of Bot.* v. i. p. 84. B. pratensis, *E. Bot.* t. 920 (*small specimen*). B. arvensis, *Ed. Cat.* p. 2.

Road-sides and corn-fields, frequent. *Fl.* June, July. ⊙. — This, Mr. H. Watson, who has studied the British Brome-grasses with great attention, says is known by its glossy grey-green spikelets, acquiring a

brownish tinge in sunny spots, its longer and more harsh peduncles than those of *B. mollis* and *racemosus*, and its glumes larger and more inflated than in *B. secalinus* and *arvensis*.

10. B. *secalínus* L. (*smooth Rye Brome-grass*); panicle loose drooping in fruit, lower peduncles slightly branched, simple peduncles about equalling the oblong compressed glabrous spikelets, flowers at first imbricated afterwards distinct cylindrical, the incurved edges of the glumes not overlapping those of the flower above them, awn straight about as long as the glume, leaves hairy but the sheaths nearly glabrous. *Wats. in Hook. Lond. Journ. of Bot.* v. i. p. 85; *E. Bot.* t. 1171 (*good, but panicle too long*); *Ed. Cat.* p. 2.

Corn-fields; not rare. *Fl.* July, Aug. ☉. — 2—3 feet high. Known in fruit by its hairy panicle, and separately rolled up flowers.

11. *B. *arvénsis* L. (*taper Field Brome-grass*); panicle spreading loose slightly drooping in fruit, lower peduncles much elongated branched, simple peduncles longer than the linear-lanceolate compressed spikelets, flowers imbricated in fruit, glumes shorter than the awns with 2 prominent ribs on each side. *H. Wats. in Hook. Lond. Journ. of Bot.* p. 85; *E. Bot.* t. 1984 (*glumes too narrow*).

Southampton Bay. Coast of Durham: *Mr. Knapp*, and *Mr. W. Backhouse*. *Fl.* June, July. ☉. — This has larger peduncles than the 3 preceding species, and the smallest glumes (*paleæ*), the latter resembling those of *B. commutatus* in acquiring a purple tinge, but differing in the prominent ribs or nerves on each side: *Mr. H. C. Watson* — (who, however, considers this species not to be really a native of Britain).

12. *B. *squarrósus* L. (*Corn Brome-grass*); panicle drooping, peduncles simple, spikelets ovato-lanceolate subcompressed, florets nearly glabrous imbricated compressed, awn divaricating, leaves pubescent. *E. Bot.* t. 1885; *Ed. Cat.* p. 2.

Corn-fields; Somersetshire and Sussex. *Fl.* June, July. ☉. — A most distinct species, remarkable for its spreading *awns*.

13. B. *eréctus* Huds. (*upright Brome-grass*); panicle erect, spikelets linear-lanceolate compressed, florets subcylindrical remote glabrous longer than the straight awn, root-leaves very narrow ciliated. *E. Bot.* t. 471; *Ed. Cat.* p. 2. — *β.* villosus *Roth: Ed. Cat.* p. 2.

In fields and by road-sides, especially in a sandy soil over chalk. In the King's Park, Edinburgh. *Fl.* July. ♃. — 2—3 feet high. This is truly perennial, which does not appear to be the case with any other *Bromus*. Its habit is that of *Brachypodium sylvaticum*. The *root-leaves* are narrow; *spikelets* erect.

30. Avéna *Linn.* Oat, or Oat-grass.

(Tab. IX. f. 30.)

Panicle lax. *Cal.* 2-valved, 2-, or more, flowered. *Cor.* of

2 lanceolate *valves*, firmly enclosing the seed: *ext.* one bearing a twisted dorsal *awn;* upper florets often imperfect. — Name of doubtful origin: the ancients applied it to the *Brome-grass. Oat,* Théis tells us, comes from the Celtic word *atan,* the *Oat;* and that again from *etan,* to *eat.*

1. A. *fátua* L. (*wild Oat*); panicle erect, spikelets drooping of about 3 scabrous much-awned florets smaller than the calyx villous below, root fibrous. *E. Bot.* t. 2221; *Ed. Cat.* p. 2.

Corn-fields, frequent. *Fl.* June, Aug. ⊙. — 2—3 ft. high. *Leaves* linear-lanceolate. *Cal.-valves* large, membranous, ovato-lanceolate, shining at the margins, keeled, acuminate, ribbed. *Ext.* valve of *cor.* with long fulvous hairs at its base, bifid at the point. *Awn* of each floret long and twisted, and constituting an excellent hygrometer. — The cultivated Oat, *A. sativa,* differs from this in having one or more upper florets imperfect and awnless, in the shorter awn and absence of hairs at the base of the florets.

2. A. *strigósa* Schrad. (*Bristle-pointed Oat*); panicle erect, branches all secund, spikelets of 2 perfect florets each awned as long as the calyx and terminated by 2 bristles. *E. Bot.* t. 1266; *Ed. Cat.* p. 2.

Corn-fields; common both in England and Scotland. *Fl.* June, July. ⊙. — Omitted in *Fl. Scot.,* though not an uncommon plant in that country. I have gathered it in the Isle of Skye, and by Dee-side above Mar-Lodge, Aberdeenshire.

3. A. *praténsis* L. (*narrow-leaved Oat-grass*); raceme erect simple, spikelets erect oblong of about 3—5 florets longer than the calyx, leaves glabrous finely serrated, lower ones involute, sheaths scarcely scabrous. *E. Bot.* t. 1204; *Ed. Cat.* p. 2.

Dry pastures, heathy and mountainous places. *Fl.* July. ♃. — *Leaves* short, finely serrated with minute cartilaginous teeth at the margins, the lower ones involute.

4. A. *alpína* Sm. (*great Alpine Oat-grass*); raceme slightly compound, spikelets erect oblong of about 5—6 florets longer than the cal., leaves glabrous linear acuminated flat minutely serrated, sheaths rounded subscabrous, culm cylindrical. *Sm. in Linn. Trans.* v. x. p. 335; *Ed. Cat.* p. 2. A. planiculmis, *E. Bot.* t. 1241; *Hook. Scot.* v. i. p. 43 (not *of Schrad.*).

Rocky places on mountains. *Fl.* June, July. ♃. — This, it must be allowed, comes very near the last species, and is principally distinguished by its stouter habit, slightly compound *raceme,* and especially by the broader flat *leaves.*

5. A. *planicúlmis* Schrad. (*flat-stemmed Oat-grass*); panicle erect compound, spikelets erect linear-oblong of 5—7 florets much longer than the calyx, leaves scabrous broadly linear suddenly acute minutely serrated, sheaths flat sharply carinated scabrous, lower part of the culm slightly compressed two-edged. *Schrad. Fl. Germ.* v. i. p. 381. t. 6. f. 2 (not *E. Bot.* t. 2141, nor *Hook. Scot.*); *E. Bot. Suppl.* t. 2684; *Ed. Cat.* p. 2.

Glen Sannox, on the ascent of Goat-fell from Loch Rannoch, Isle of Arran, Scotland: *Mr. Stuart Murray*. *Fl.* July. ♃. — Mr. Murray had the good fortune to discover this interesting grass in 1826, and has ever since cultivated it in the Glasgow Botanic Garden, where it preserves all its characters, of which none are so striking as the flat, sharply carinated sheaths and the great breadth of its leaves; in cultivated specimens (where the plant is nearly 3 feet high), ½ an inch in breadth. They are, too, almost equal in width throughout; at the extremity suddenly coming to a sharp point. *Panicle* with many, but short branches. *Spikelets* much longer and larger than in *A. alpina*. *Florets* smaller.

6. A. *pubéscens* L. (*downy Oat-grass*); panicle erect nearly simple, spikelets erect of about 3 florets, a little longer than the cal., outer valves of cor. jagged, leaves plane downy edges smooth. *E. Bot.* t. 1640; *Ed. Cat.* p. 2. Trisetum pub. *Pers.*

Dry pastures, especially in chalky or limestone countries. *Fl.* June, July. ♃. — Nothing, as it appears to me, can be more unnatural than to place this plant in a different genus from the two preceding. In habit it partakes of the character of the larger-flowered and "field species," if I may so call them, of this genus (*A. fatua* and *strigosa*), and of the following smaller-flowered one. *Mr. Lindley* confines the Genus *Trisetum* to *T. pubescens* and *T. flavescens*. *M. Dumortier* adds to it our *A. pratensis* and *Aira præcox*.

7. A. *flavéscens* L. (*yellow Oat-grass*); panicle much branched lax, spikelets of about 3 florets equal in length to the longer of the very unequal cal.-valves, outer valve of the cor. with two terminal bristles. *E. Bot.* t. 952. Trisetum flavescens, *Ed. Cat.* p. 2.

Dry meadows and pastures, frequent. *Fl.* July. ♃. — It has the smallest flowers of all our *Oat-grasses*, and may readily be distinguished by that circumstance, by the two terminal bristles on the outer valve of the *cor.* and by the unequal *cal.-valves*. Floral pedicels downy with a small tuft of hairs at the top, and there is a terminal abortive flower, reduced to a pedicellated bristle, hairy at its base.

31. Arúndo *Linn.* Reed.

(Tab. IX. f. 31.)

Panicle loose. *Cal.* 2-valved, unequal, many-flowered. *Cor.* of 2 very unequal *valves;* all, except the lower and imperfect one, surrounded by a tuft of hairs. *Fruit* free, covered by the *cor.* — Name: *arundo*, the Latin for a *reed;* "ab *arendo*, quod cito arescat." De Théis says it comes from *arn*, the Celtic word for *water*. There is abundant room for the exercise of imagination in the derivation of names.

1. A. *Phragmítes* L. (*common Reed*); panicle spreading, cal.-valves acuminate coloured ribbed and about 5-flowered, leaves lanceolate acuminato-cuspidate. *E. Bot.* t. 401. Phragmites communis, *Ed. Cat.* p. 10.

Abundant in ditches, margins of lakes, rivers, &c. *Fl.* July. ♃. — 6 ft. or more high; the tallest of our grasses. *Panicle* large, purple-

brown, at length drooping, very handsome. *Valves* of the *cal.* very unequal: *ext.* ovato-lanceolate, many-ribbed; *int.* twice as long, thin, membranous, obsoletely ribbed. As the flowers advance, the tufts of hair increase, at length becoming very silky. This plant frequently forms patches of immense extent, called *Reed-ronds* in some parts of the east of England, which harbour many aquatic birds and the rare *Parus biarmicus* or *bearded tit-mouse*. An extensive use is made of the culms for thatching, garden-screens, for walls and floors which are afterwards covered with clay, &c.

** *Flowers spiked. Solitary flowers or spikelets, sessile upon a common stalk or rachis.*—(Tab. IX. f. 42. *e, f, g.*) Gen. 32—41.

† *Flowers or spikelets distichous, or inserted on all sides.* (Tab. IX. f. 42. *e, f.*) Gen. 32—38.

32. E'LYMUS *Linn.* Lyme-grass. (Tab. IX. f. 32.)

Spikelets 2 or 3 from the same point. *Cal.* 2-valved, lateral (both the valves being on one side of the spikelet), 2—3-flowered, all perfect. *Cor.* 2-valved.—Name: ελυμος, given by the Greeks to the *Panic-grasses*, perhaps because they grew abundantly about *Elyma* in Greece. *Théis.*

1. E. *arenárius* L. (*upright Sea Lyme-grass*); spike close erect, spikelets in pairs hairy, florets awnless as long as the lanceolate valves of the cal., leaves involute pungent. *E. Bot.* t. 1672; *Ed. Cat.* p. 5.

Sandy sea-shores, frequent. *Fl.* (rarely) July. ♃.—*Root* much creeping in the loose soil; hence this grass becomes of great value, like the *Ammophila arenaria*, for preserving a considerable extent of our own coasts and those of Holland from the encroachments of the sea. *Culms* 3—4 ft. high, glabrous. *Leaves* glaucous, pungent. *Spike* 4—6 inches long. *Spikelets* of about 3 flowers on the rachis. *Cal.-valves* 2, lanceolate, acuminate. *Valves* of the *cor.* resembling them, but the *ext.* one broader; *int.* bifid at the point, angles of the folds ciliated. The seeds are said to be made into bread in Iceland.

2. E. *geniculátus* Curt. (*pendulous Sea Lyme-grass*); spike lax bent downwards with one angle, spikelets in remote pairs, cal.-valves subulate glabrous longer than the florets, leaves involute pungent. *E. Bot.* t. 1586; *Ed. Cat.* p. 5.

Near Gravesend, in a salt-marsh: very rare. *Fl.* July. ♃.—A very remarkable plant, apparently quite distinct from the preceding; yet I cannot but wish some one would study it in its locality, *Gravesend*, which is the only station recorded for it. I possess something very like it in a diseased state of *E. arenarius*, gathered in Scotland by *Mr. M'Nab.*

3. E. *Europæus* L. (*Wood Lyme-grass*); spike erect compact glabrous, spikelets ternate 1—2-flowered, cal.-valves setaceous, florets terminated by a long awn, leaves flat. *E. Bot.* t. 1317; *Ed. Cat.* p. 5.

Woods and thickets, especially in a chalky soil: apparently not rare

in the midland and northern parts of England, but unknown to Scotland. *Fl.* June. ♃. — It would appear to me much more natural to unite this with *Hordeum*, as Hudson has done. My specimens have the calyx mostly one-flowered, and I do not see how it differs from those *Hordea* which have their *lateral* flower *fertile*. In habit, too, it quite accords, as well as in the long awns and subulate cal.-valves.

33. Hórdeum *Linn.* Barley.

(Tab. IX. f. 33.)

Cal. lateral, 2-valved, single-flowered, ternate; central floret perfect, lateral ones mostly imperfect (having often at the back of the inner valve a bristle or abortive floret). Outer valve of *cor.* awned. *Fruit* incorporated with the *cor.* — Name of dubious origin.

1. H. *murínum* L. (*Wall Barley*); cal.-valves of the intermediate floret linear-lanceolate ciliated, those of the lateral florets setaceous scabrous. *E. Bot.* t. 1971; *Ed. Cat.* p. 7.

Waste ground, by walls and road-sides: common in England, rare in Scotland. About Edinburgh; and at Elgin: *Rev. G. Gordon*, which is its most northerly range. *Fl.* June, July. ⊙.

2. H. *praténse* Huds. (*Meadow Barley*); all the cal.-valves setaceous and scabrous. *E. Bot.* t. 409; *Ed. Cat.* p. 7.

Moist meadows and pastures in England, frequent: rare in Scotland; *Mr. Neill* finds it about Salisbury Craigs. *Fl.* July. ⊙.

3. H. *marítimum* With. (*Sea-side Barley*); cal.-valves smoothish, the interior one of the lateral florets semi-lanceolate, the rest setaceous. *E. Bot.* t. 1205; *Ed. Cat.* p. 7.

Light dry pastures and sandy ground near the sea, not rare in England. In Scotland it has only been found in Angus-shire. *Fl.* July. ⊙. — All our British grasses of this genus are admirably characterised by the form, &c. of their *cal.-valves*. The present is the smallest species, procumbent at the base and glaucous.

34. Tríticum *Linn.* Wheat, *or* Wheat-grass.

(Tab. IX. f. 34.)

Cal. 2-valved, many-flowered; its valves opposite, transverse, the sides (not the back of one of them) directed to the rachis, nearly equal. *Cor.* 2-valved, valves lanceolate: *ext.* one acuminate or awned at the extremity; *int.* bifid at the point. — There are two natural groups in this genus: 1st, the large annual species foreign to our country, which are cultivated so extensively as *Bread-corn*; and, 2dly, the smaller perennial species, many of which are natives with us. These some authors look upon as 2 distinct genera; *Triticum* and *Agropyrum* (*Beauv.*, *Lindl.*). We have only the latter genus or group in Britain. — Name: *Triticum*, "quod *tritum* est e spicis:" because it is thrashed or beaten from the spikes.

* *Spikelets distichous.*

1. T. *canínum* Huds. (*fibrous-rooted Wheat-grass*); cal.-valves awned with 3—5 ribs and about 5 awned florets, leaves plane, root fibrous. *E. Bot.* t. 1327; *Ed. Cat.* p. 14. Elymus *L.*

Woods and banks, frequent. *Fl.* July. ♃.—Best distinguished from the following by its fibrous root.

2. T. *repéns* L. (*creeping Wheat-grass*, or *Couch-grass*); cal.-valves many-ribbed with from 4—8 awned (rarely awnless) florets, leaves plane, root creeping. *E. Bot.* t. 909; *Ed. Cat.* p. 14. —β. littorale *Host: Ed. Cat.* p. 14.

Fields and waste places, every where. *Fl.* throughout the summer months. ♃.— In habit between the preceding and following, having a glaucous tint when growing near the sea. *Leaves* plane or nearly so. *Spikelets* smaller and less compressed than in *T. junceum*. *Cal.* and *ext. valves* of the *cor.* with from 5—9 nerves, acute or terminated by an awn of greater or less length. — This pest of the corn-fields is difficult to be extirpated on account of its long creeping roots.

3. T. *júnceum* L. (*rushy Sea Wheat-grass*); valves of the cal. obtuse much ribbed with 4—5 awnless florets, leaves involute pungent, root creeping. *E. Bot.* t. 814; *Ed. Cat.* p. 14.

Sandy sea-shores, frequent. *Fl.* July. ♃.— Whole plant glaucous, rigid, 1½—3 ft. high. *Spike* long. *Spikelets* oblong, much compressed, distant, sessile. *Cal.-valves* oblong-lanceolate, often with 3 teeth at the point. *Ext.-valves* of the *cor.* similar, with 5 nerves.

4. T. **cristátum* Schreb. (*crested Wheat-grass*); valves of the cal. subulate keeled awned scarcely nerved with about 4 awned florets, spikelets much crowded. *E. Bot.* t. 2267; *Ed. Cat.* p. 14.

Sea-side between Arbroath and Montrose: *G. Don. Fl.* July. ♃.

** *Spikelets secund.*

5. T. *loliáceum* Sm. (*dwarf Sea Wheat-grass*); valves of the cal. indistinctly 3-nerved obtuse of many awnless florets, root fibrous annual. *E. Bot.* t. 221. Catapodium *Link.* Sclerochloa, *Ed. Cat.* p. 12.

Sandy sea-shores of Norfolk, Suffolk, and Essex. North Wales and Isle of Man. East coast of Scotland. *Fl.* June, July. ☉.— Singularly stiff and wiry, as much so as *Poa rigida*, which it greatly resembles; branching from the very base, 3—4 inches high. *Leaves* linear, rigid, plane. *Spikelets* more or less distant, secund, lower ones sometimes compound. *Ext. valve* of the *cor.* broadly ovate, concave.

35. Brachypódium *Beauv.* False Brome-grass. (Tab. IX. f. 35.)

Spikelets alternate, remote, cylindrical-compressed. *Cal.* 2-valved, many-flowered; *valves* opposite, transverse, unequal. *Cor.* 2-valved: *valves* lanceolate; *ext.* one generally awned at the extremity; *int.* retuse.— Named from βραχυς, *short*, and πους, a *foot*; from the sessile or nearly sessile spikelets. These sessile spikelets and the *terminal* awn distinguish this genus

from *Bromus*, where the British plants of this genus had been placed. There are many continental species, which preserve the same habit; and the individuals naturally come near to the British species of *Triticum*. Beauvois, perhaps with justice, refers *Trit. loliaceum* to it.

1. *B. sylváticum* Beauv. (*slender false Brome-grass*); spike drooping, spikelets nearly cylindrical secund hairy, awns longer than the florets. *Ed. Cat.* p. 2. Festuca, *E. Fl.* v. i. p. 149. Bromus *Poll.*: *E. Bot.* t. 729.

Woods and hedges, not frequent. *Fl.* July. ♃. — 2 feet high. *Leaves* broadly linear-lanceolate, very hairy. *Cal.-valves* unequal, lanceolate-acuminate, much nerved. *Ext. valve* of *cor.* linear-lanceolate, much nerved, scabrous, rarely hairy; *int.* one truncate, margins ciliated.

2. B. *pinnátum* Beauv. (*Heath false Brome-grass*); spike erect, spikelets nearly cylindrical distichous hairy, awns shorter than the florets. *Lindl. Syn.* p. 297; *Ed. Cat.* p. 2. Festuca, *E. Fl.* v. i. p. 150. Bromus *L.*: *E. Bot.* t. 730.

Open fields and heathy places, on chalky soil; in Yorkshire, Oxfordshire, and Kent. *Fl.* July. ♃. — A very graceful plant.

36. Lólium *Linn.* Darnel.
(Tab. IX. f. 36.)

Cal. of one *valve*, solitary, many-flowered. *Cor.* of two *valves*; *ext.* awnless, or with an awn below the extremity. — Name: "quasi *dolium*, δολιον, quod dolosum sit vel adulterinum. Fit enim e corruptis Tritici ac Hordei seminibus." The ancients as well as the moderns attributed poisonous qualities to the *L. temulentum*; and even now it is believed in some countries that the *Wheat* changes into *Darnel*.

1. L. *perénne* L. (*perennial Darnel*, or *Rye-grass*); spikelets 6—8-flowered longer than the cal., florets awnless linear-oblong compressed, root perennial. *E. Bot.* t. 315; *Ed. Cat.* p. 8. — β., *Ed. Cat.* p. 8.

Way-sides, pastures, and waste places, frequent. *Fl.* June, July. ♃. — 1—2 feet high. *Spike* with the general aspect of *Triticum repens*; sometimes, from luxuriance, compound. *Florets* linear-oblong, nerved. Mr. H. C. Watson finds a var. of it at E. Moulsey, with awns as long as in the following species, probably the *L. Boucheanum* Kunth. — A most valuable grass for the agriculturist, and frequently employed with *clover* for artificial pasture and hay.

2. L. *multiflórum* Lam. (*annual many-flowered Rye-grass*); spikelets 10—14-flowered much longer than the calyx, upper florets with long awns lanceolate, root annual. *Reich. Ic.* ii. f. 1345.

Pea-field, Claygate, Surrey: *H. C. Watson, Esq.* Fields near Richmond, Yorkshire: *J. Ward, Esq.* Broughton, near Manchester: *Dr.*

J. B. Wood. Fl. June. ⊙. — The root is said to be strictly annual; were it not for that, it might pass for a many-flowered awned var. of the preceding, as indeed Bertoloni considers it in his *Flora Italica.*

3. L. *temuléntum* L. (*bearded Darnel*); spikelets equal in length with the cal., florets as long as the rigid awns, root annual. *E. Bot.* t. 124; *Ed. Cat.* p. 8. — β. florets with short soft imperfect awns. *Ed. Cat.* p. 8. L. arvense *With.: E. Bot.* t. 1125.

Corn-fields, not common in Scotland. *Fl.* July. ⊙. — The seeds mixed with wheat and made into bread have proved highly injurious to those who have eaten it. The *L. arvense* of Withering can only be considered a var. of the present with an imperfect awn.

37. Rottbóllia *Linn.* Hard-grass.
(Tab. IX. f. 37.)

Cal. of 2 valves; *valves* unilateral, sometimes combined into one, 1—2-flowered. *Cor.* 2-valved, awnless, imbedded, as it were, in a thick *rachis.* — Named from *Rottböll,* a professor of botany at Copenhagen.

1. R. *incurváta* L. (*Sea Hard-grass*); spike cylindraceo-subulate, cal. 2-valved, valves united at the base. *E. Bot.* t. 760. Ophiurus *Beauv.* Lepturus incurv. *Trin.: Ed. Cat.* p. 7. — β. spike filiform nearly erect. R. filiformis *Roth.* Lepturus filiform. *Trin.: Ed. Cat.* p. 7.

Sea-shores; but not common. On the south-west and east of Scotland. Inverkeithing: *Dr. Andrew Robertson.* — β. near Aberlady, Scotland. Near Dublin. *Fl.* July, Aug. ⊙. — *Plant* from 2—6 or 8 inches high, more or less curved, especially in the curious spike.

38. Knáppia *Sm.* Knappia.
(Tab. IX. f. 38.)

Cal. single-flowered, of 2 truncated, nearly equal *valves. Cor.* of 2 unequal, hairy *valves,* obtuse. — Named in honour of *Mr. Knapp,* an English botanist, author of a work on British grasses.

1. K. *agrostidéa* Sm. (*early Knappia*). *E. Bot.* t. 1127; *E. Fl.* v. i. p. 84; *Ed. Cat.* p. 7. Agrostis minima *Linn.* Mibora *Adans., Lindl.* Chamagrostis *Bork.* Sturmia *Hopp.*

Sandy pastures by the sea, rare. Essex, near the mouth of the Thames. Wales, and S. W. coast of Anglesea, frequent. *Fl.* March, April. ⊙. — A beautiful and minute grass, of which only one species is known. *Root* fibrous. *Stems* several from the same root. *Leaves* short, linear, rough, equal in length with their white, inflated *sheaths. Cal.* of 2 dorsally compressed, truncated, purplish *valves. Cor.* of 2 white, delicate, very hairy, jagged *valves,* the *outer one* much the largest and embracing the *inner.* Mr. Wilson finds no scale. *Styles* long, filiform, hairy. *Fruit* beautifully dotted.

†† *Flowers in unilateral spikes.* (Tab. IX. f. 42. *g.*) Gen. 39—41.

39. Spartína *Willd.* Cord-grass. (Tab. IX. p. 39.)

Spike compound. *Spikelets* unilateral. *Cal.* of 2 opposite, lanceolate, compressed, unequal, acuminate *valves*, one-flowered. *Cor.* of two compressed, unequal, lanceolate *valves*. *Styles* united half-way up. — Name derived from its similarity to the *Lygeum Spartum*, or *bastard mat-weed*. *Esparto* is a name given to *Stipa tenacissima* by the Spaniards, who make ropes, &c. of it.

1. S. *stricta* Sm. (*twin-spiked Cord-grass*); spikes 2—3, flowers very hairy, larger cal.-valve acuminate, leaves shorter than the spikes tapering at the base articulated upon the sheath lower ones deciduous, rachis scarcely produced beyond the terminal florets of each partial spike. *E. Fl.* v. i. p. 135; *Ed. Cat.* p. 13. Dactylis stricta, *E. Bot.* t. 389.

Muddy salt-marshes on the east and south-east coasts of England. *Fl.* Aug. ♃. — A remarkably stiff, rigid plant. *Stems* 6—8 inches, or a foot and more high. *Culms* concealed by the sheathing bases of the short pungent involute *leaves*.

2. S. *alterniflóra* Loisel. (*many-spiked Cord-grass*); spikes numerous, flowers glabrous, larger cal.-valve with strong lateral nerves emarginate below the apex, leaves equal to or longer than the spikes dilated at the base continuous with the sheath, and all persistent, rachis much produced into a flexuose awn-like point. *Bromf. in Comp. to Bot. Mag.* v. ii. p. 254, *and in E. Bot. Suppl.* t. 2812; *Ed. Cat.* p. 13. S. glabra *Muhl.* S. lævigata *Link*.

Itchen Ferry, Southampton: *Dr. Bromfield. Fl.* Aug. ♃. — Much taller than the preceding, and a very distinct species, well characterized in the memoir of Dr. Bromfield.

40. Cýnodon *Rich.* Dog's-tooth grass. (Tab. IX. f. 40.)

Spikes digitate or racemose. *Spikelets* unilateral. *Cal.* 1-flowered, of 2 nearly equal, patent, boat-shaped *valves*. *Cor.* of two awnless *valves*; *ext.* boat-shaped, compressed. *Fruit* coated with the hardened *cor.* — Named from κυων, a *dog*, and οδους, a *tooth*.

1. C. *dáctylon* Pers. (*creeping Dog's-tooth Grass*); spikes digitate 3—5, cor. glabrous subciliated longer than the cal. with a beardless bristle at the base of the interior valve. *Br.: Ed. Cat.* p. 4. Panicum *L.: E. Bot.* t. 850.

Rare: on the sandy shores of Cornwall, near Penzance. Sandy shore at Studland, Dorset: *Dr. Slater:* in abundance: *Mr. Borrer. Fl.* July, Aug. ♃.

41. Digitária *Scop.* Finger-grass.
(Tab. IX. f. 41.)

Spikes compound. *Spikelets* unilateral. *Cal.* 1-flowered, of 2—3 very unequal, close-pressed, awnless *valves*; *ext.* very small. *Cor.* of 2 awnless *valves*; *ext.* convex, embracing the flattened *int.* one. *Fruit* coated with the hardened *cor.* — Named from *digitus*, a *finger*.

1. D. **sanguinális* Scop. (*hairy Cock's-foot*, or *Finger-grass*); leaves and sheaths hairy, florets oblong glabrous their margins scabrous. *Ed. Cat.* p. 4. Panicum *Linn.*: *E. Bot.* t. 849.

Rare, in sandy cultivated fields; it formerly grew in Battersea fields, near London. Other habitats, given in the British Floras for this plant, belong, in Mr. Borrer's opinion, to the next species. *Fl.* July, August. ☉. — From a span to a foot high, branched at the base, erect or ascending. *Leaves* and *sheaths* hairy, the latter with small tubercles from which the hairs spring. *Spikes* 3—5, digitated. *Spikelets* secund, 2 together, appressed to the flattened rachis. *Cal.*, *outer valves* very small; *inner* nearly equal, plane, of which the *ext.* one is oblong, ribbed and downy or slightly scabrous at the margin, ribs glabrous.

2. D. **humifúsa* Pers. (*glabrous Cock's-foot*, or *Finger-grass*); leaves and sheaths glabrous, florets ovate pubescent. *Hook. in E. Bot. Suppl.* t. 2613; *Ed. Cat.* p. 4. Syntherisma glabrum *Schrad. Germ.* v. i. p. 163. t. 3. f. 6.

Rare: on loose sand at Weybridge, Surrey: *Mr. Borrer*, who says that the Ipswich *D. sanguinalis* is this, and who thinks that the Norfolk and Suffolk stations, assigned to that plant in *Engl. Fl.*, probably belong to the present. *Fl.* July, August. ☉. — Generally smaller and more depressed than the preceding, of a purpler hue. *Leaves* and *sheaths* quite glabrous. *Spikes* fewer, 2—4 in Mr. Borrer's specimens. *Florets* more ovate and more convex, outer of the two larger calycine valves purple, downy, and ribbed. *Richard*, in *Pers. Syn.*, appears to have been the first who discriminated this as a species, and Schrader has admirably described it and figured the flower.

Ord. XCIX. CYPERACEÆ.

Flowers frequently monœcious, subtended by a chaffy *scale* (*glume*). *Perianth* 0, or composed of bristles, rarely a membrane (as in *Carex*). *Stamens* hypogynous, generally 3. *Anthers* fixed by their base. *Ovary* superior, with one erect *ovule*. *Style* single, generally trifid, rarely bifid. *Stigmas* entire. *Achenium* crustaceous or bony. *Embryo* lenticular, enclosed in the base of a copious *albumen*. — Stems *often angular, frequently without joints*. Leaves *with entire sheaths*. Scales *of the flowers arranged in spikes, the lower ones often sterile*.

1. Cypérus *Linn.* Cyperus, *or* Galingale.

Spikelets 2-ranked, many-flowered. *Glumes* of one valve,

keeled, mostly all fertile, equal. *Bristles* none. *Style* inarticulated, deciduous. — Named from κυπειρος of the Greeks, an appellation given to one of this genus.

1. C. *lóngus* L. (*sweet Cyperus*, or *English Galingale*); spikelets linear-lanceolate erecto-patent in doubly compound umbels, general involucre very long leafy, partial small, stem triangular. *E. Bot.* t. 1309; *Ed. Cat.* p. 4.

Very rare. Marsh near St. David's, and at Walton, in Gordon, Somersetshire. Near Seabrooke, Kent. Boyton, Wilts. Isle of Wight: *Dr. Bromfield.* Guernsey and Jersey. *Fl.* July. ♃. — *Root* very aromatic and astringent.

2. *C. *fúscus* L. (*brown Cyperus*); spikelets linear-lanceolate fasciculato-corymbose, glumes patent, involucre of 3 unequal leaves, stems triangular, stigmas 3. *Hook. in Fl. Lond.* N. S. t. 85, *et in E. Bot. Suppl.* t. 2626; *Ed. Cat.* p. 4.

Meadow near Little Chelsea, where it was discovered by *Mr. Haworth.* *Fl.* September. ☉. — A small plant, only a few inches high. Of the genus *Cyperus*, 237 species are described in Sprengel's *Syst. Vegetabilium.* Most of them are tropical: they gradually diminish in number as we recede from the tropics; so that though 2 species have been found in England, none exists in Scotland.

2. Cládium *Schrad.* Twig-rush.

Perianth single, glumaceous. *Glumes* of 1 piece or valve, 1-flowered, imbricating; outer ones sterile. *Fruit*, a *nut* with a loose external coat, destitute of bristles at the base. — Named from κλαδος, a *branch*; so called, perhaps, from the many branches bearing spikelets.

1. C. *Marıscus* Br. (*prickly Twig-rush*); panicle much divided leafy, spikelets capitato-conglomerate, stem rounded leafy, margins of the leaves and keel rough. *Ed. Cat.* p. 4. Schœnus Mariscus *L.*: *E. Bot.* t. 950.

Boggy and fenny places, in several parts of England, as in Norfolk, Cambridge, Kent, &c.; Cheshire. Plentiful in Galloway, Scotland. Sutherlandshire: *Dr. Graham.* *Fl.* July, Aug. ♃. — *Plant* 3—5 feet high, leafy. *Leaves* rough, almost prickly at the margin and keel. *Glumes* ovate, brown, 6—7 in an ovate *spikelet*; inner ones the longest, generally the two or sometimes three innermost ones are floriferous; of which one (" sometimes 2, more rarely all :" *Wilson*) bears a coated *nut*, almost as large as the spikelet. *Stigmas* generally two, sometimes cloven: *Wilson.*

3. Schœnus *Linn.* Bog-rush.

Spikelets 2-ranked, 1—3-flowered, outer *glumes* smaller, empty. *Bristles* small or none. *Style* deciduous. — Name: from σχοινος, a *cord*, because a kind of cordage was anciently made from plants of this tribe.

1. S. *nígricans* L. (*black Bog-rush*); stem rounded, spikelets

collected into a rounded head shorter than the outer bracteas. *E. Bot.* t. 1121; *Ed. Cat.* p. 12.

Wet moors and boggy places. Rare in Scotland, except on the West coast. *Fl.* June, July. ♃. — Remarkable for its rigid habit, nearly setaceous *leaves*, and the dark brown almost black heads of *flowers*. The *style* is jointed upon the germen and darker than it. "*Bristles* small, reddish-brown, spiny, the spines pointing upwards:" *Mr. Wilson.*

4. Rhynchóspora *Vahl.* Beak-rush.

Spikelets few-flowered, the *glumes* one-valved, imbricated on all sides, the lower ones smaller, empty. *Bristles* several, included, toothed. *Style* subulate, bifid, dilated at the base. *Nut* crowned with the persistent, more or less articulated, *style.*— Named from ρυγχος, a *beak*, and σπορα, a *seed.* (Very different in habit from *Eleocharis*, but too near in generic character.)

1. R. *álba* Vahl (*white Beak-rush*); spikelets in a compact corymb as long as the outer bracteas, leaves narrow-linear. *Ed. Cat.* p. 11. Schœnus alb. *L.*: *E. Bot.* t. 985.

Wet pastures and turfy bogs. *Fl.* June — Aug. ♃. — *Spikelets* of *flowers* white or whitish, collected so as to form a level surface at the top. In the flowers are 8—11 bristles, with reflexed teeth, much longer than the germen, and decidedly placed outside the 2 stamens. *Fruit*, in this and *R. fusca*, obovate, compressed, distinctly margined, tapering at the base into a short stalk. *Style* persistent, thin, pellucid, often greenish, dilated at the base, which is not articulated, nor so broad as the seed, but immediately distinguishable from the shining *nut* by its colour and texture. If *R. aurea*, the first species described by Vahl, is to be considered the type of the genus, then must our two British species be separated from it, if the fruit and the *style* are to afford characters: for in *R. aurea* the nut is obovate, indeed, but not at all compressed nor margined; the style is very large, thick, corky, swollen at the base, and remarkably constricted where it is set upon the germen; it is moreover grooved on two sides. I find but one flower in the spikelets of *R. aurea*, two in those of *R. alba.*

2. R. *fúsca* Sm. (*brown Beak-rush*); spikelets in an oval head much shorter than the outer bracteas, leaves almost filiform. *Ed. Cat.* p. 11. Schœnus fusc. *L.*: *E. Bot.* t. 1575.

Bogs, principally in the south-west of England and Ireland. *Fl.* July, Aug. ♃. — Habit of the last, though very different in specific character. Heads of *flowers* oval, rich brown; *spikelets* larger and the *stigmas* more protruded. *Stamens* 3. Smith and Sturm have figured and described only 3 bristles to each flower: I find 6 (which have erect teeth: *Wilson*) in the British, as well as in American specimens, which latter are in no respect different from ours.

5. Scírpus *Linn.* Club-rush.

Glumes of one valve, imbricated on all sides, equal, 1 or 2 of the outer ones sometimes sterile. *Bristles* sometimes wanting. *Style* inarticulated, deciduous, leaving only a small mucro. — Name, according to Théis, from *Cirs*, in Celtic, which makes

Cors in the plural, whence *chorda* in Latin, and *cord* in English; the stems having been formerly employed for the same purposes as those of *Schœnus*.

1. S. *lacústris* L. (*Lake Club-rush*, or *Bull-rush*); spikelets in compound lateral umbels mostly shorter than the rounded almost leafless stem. *E. Bot.* t. 666; *Ed. Cat.* p. 12. — β. glaucus; smaller and glaucous. S. glaucus, *E. Bot.* t. 2312. — S. Tabernæmontani *Gmel.: Ed. Cat.* p. 12.

Plentiful on the margins of lakes and ponds. — β. In similar situations. *Fl.* July, August. ♃. — *Root* much creeping. *Inflorescence* truly lateral near the extremity of the stalks, which are very variable in size, 2—6 or 8 feet high, and as thick as a finger at the base. *Spikelets* often almost sessile. *Glumes* brown, fringed. *Stigmas* 2—3. *Fruit* obovato-triquetrous, accompanied by 5 or 6 *bristles*. The *stems* are much used for mats, chair-bottoms, &c., and they constitute a considerable article of trade. Coopers employ them for filling up spaces between the seams of casks, their spongy nature well adapting them to this purpose. Mr. Wilson observes that *var.* β. has the seed more elliptical and compressed, and of a pale brown colour; not shining or polished, as in the true *S. lacustris*.

2. S. *Holoschœnus* L. (*round cluster-headed Club-rush*); stem rounded, spikelets lateral collected into compact globular sessile or stalked heads, leaves subulate channelled, bristles to the flower none. *E. Bot.* t. 1612. Isolepis *Nees: Ed. Cat.* p. 7.

Sandy sea-shores, only found in the extreme southern and western parts of England. *Fl.* Sept. ♃.

3. S. *setáceus* L. (*Bristle-stalked Club-rush*); stem compressed with 1 or 2 leaves at the base, spikelets about 2 terminal, general bractea erect leafy much shorter than the stem, fruit ribbed obovate and marked with transverse lines, bristles none. *E. Bot.* t. 1693. Isolepis setacea *Br.: Ed. Cat.* p. 7.

Moist gravelly places, frequent. *Fl.* July, Aug. ♃. — *Stems* tufted, 2—5 inches high, very slender. *Stam.* 2. *Stigmas* 3.

4. S. *Sávii* Spreng. (*Savi's Club-rush*); stem round leafy below, spikelets 1—3 terminal shorter than the unequally two-leaved involucre, fruit subglobose rough with slightly elevated points, bristles none. *Hook. in E. Bot. Suppl.* t. 2782. Isolepis Saviana *Roem. et Sch.* I. Savii *R. et S.: Ed. Cat.* p. 7. Scirpus filiformis *Savi.*—β. monostachys; spikelet solitary with a shorter involucral bractea. *Hook.* l. c.

Wet bogs, Ireland, and in the west of England and Scotland, Jersey, &c. — β. Cork: *Mr. Sealy*. *Fl.* July. ♃. — In habit much resembling the last species, as the *var.* β. does the *Eleocharis acicularis;* but the fruit is quite peculiar. *Stamens* 3.

5. S. *tríqueter*[1] L. (*triangular Club-rush*); stem acutely tri-

[1] Mr. Babington separates from this: "*S. pungens* Vahl (*sharp Club-rush*); stem triquetrous, spikes 1—3 sessile lateral, glumes smooth pointed emarginate slightly fringed their lobes acute, stigmas 2, apex of the anthers

quetrous straight at the point, its sheaths leafy, spikelets ovate or oblong-ovate clustered sessile and stalked naked, stigmas 2, fruit smooth. *E. Bot.* t. 1694; *Ed. Cat.* p. 12.

Muddy banks of rivers, near London. River Arun, near Amberley. A *var.*, with spikelets all sessile, was found in Jersey by *Sherard*; perhaps the *S. pungens* Vahl. *Fl.* Aug. ♃.

6. S. *carinátus* Sm. (*blunt-edged Club-rush*); stem rounded at the base bluntly triangular upwards, its sheaths leafless, cyme terminal decompound, involucre of 2 unequal leaves, spikelets oblong, stigmas 2. *E. Bot.* t. 1983. S. trigonus *Roth: Ed. Cat.* p. 12.

Banks of rivers, very rare. About London and on the banks of the Arun, Sussex. *Fl.* July, Aug. ♃.

7. S. *marítimus* L. (*Salt-marsh Club-rush*); stem leafy triangular, spikelets terminal clustered stalked and sessile, involucre of many foliaceous leaflets, glumes with a mucro between the acute segments of the notch. *E. Bot.* t. 542; *Ed. Cat.* p. 12.

Salt-marshes, frequent. *Fl.* July, Aug. ♃.—*Root* creeping, sometimes swelling into knots or tubers. *Leaves* frequently longer than the stem, flat, acuminate. *Stigmas* 3. *Bristles* 3—4, accompanying the smooth, obovato-triangular *fruit*.

8. S. *sylváticus* L. (*Wood Club-rush*); stem triangular leafy, cyme terminal many times compound, involucre of many foliaceous leaflets, glume entire acute. *E. Bot.* t. 919; *Ed. Cat.* p. 12.

Moist woods and banks of rivers. Abundant in South Kent; about Killin, at the head of Loch Tay, Perthshire, and in very many places in the south of Scotland. It seems to be less frequent in England. *Fl.* July. ♃.—A handsome species, bearing innumerable small, greenish, ovate *spikelets*. *Stem* 2—3 feet high. *Leaves* broadly linear. *Fruit* with rather long bristles.

6. Blýsmus *Panz.* Blysmus.

Spikelets bracteated, arranged on a zigzag rachis into a distichous compressed *spike*. *Glumes* of one valve, imbricated on all sides, the outermost gradually the largest, empty. *Bristles* several or none. *Fruit* compressed, oval, gradually tapering into the persistent *style*.—Named from βλυσμος, *source* or *spring*, near which the species usually grow.

1. B. *compréssus* Panz. (*broad-leaved Blysmus*); lowermost bractea subulate somewhat leafy, bristles 5—6 as long as the

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subulate and ciliated, root creeping. *Bab. in E. Bot. Suppl.* t. 2819. *Prim. Fl. Sarn.* p. 102. Sc. Rothii *Gaud. Fl. Helv.* 1. 124. Sc. tenuifolius *D C. Fl. Franc. 5.* 100; *Bot. Gall.* 1. p. 487. Sc. triqueter β. *Sm. Engl. Fl.* 1. 60. Juncus acutus maritimus, caule triquetro rigido, mucrone pungente. *Ray Syn.* 429. — On the wet sandy banks of St. Ouen's Pond, Jersey, first noticed by Sherard, as recorded in Ray's Syn., — since re-discovered by *Mr. Jos. Woods. Fl.* July. ♃. — Distinguished from *Sc. triqueter*, by its acutely lobed glumes and the subulate point to its anthers:" *Bab.*

permanent style, leaves linear channelled. *Ed. Cat.* p. 2. Schœnus compressus *L.: E. Bot.* t. 791; *Retz.* Scirpus caricinus, *E. Fl.* v. i. p. 58. Carex uliginosa *L.*

Boggy pastures, by river-sides and near the sea: not uncommon. *Fl.* July. ♃.—*Stem* 6—8 inches high, leafy. *Glumes* brown, striated. *Bristles* with reflexed spines. The habit of this and the following species is quite peculiar.

2. B. *rúfus* Link (*narrow-leaved Blysmus*); bracteas all equally membranaceous, bristles none, leaves very narrow grooved. *Ed. Cat.* p. 2. Schœnus rufus, *E. Bot.* t. 1010. Scirpus rufus *Schrad.: E. Fl.* v. i. p. 59.

Marshy plains, especially near the sea; particularly in Scotland, as far as Shetland. On the coast of Wales, west of England, and west of Ireland. *Fl.* July. ♃.—Slenderer and more rigid than the last, more upright: *spikes* darker; the *glumes* more membranaceous, thin, not striated, and obtuser; in both very broad and convolute.

7. Eleócharis *Br.* Spike-rush.

Glumes of one valve, imbricated on all sides, uniform, scarcely any empty. *Bristles* (4—12) toothed, rarely none. *Style* 2—3-fid, its dilated base jointed upon the germen. *Nut* mostly lenticular, crowned with the broad base of the indurated *style.*—*Marsh plants.* Stems *simple, leafless, sheathed at the base.* Spike *solitary, terminal, erect, not leafy. Br.*—Name: ελος, ελεος, a *marsh*, and χαιρω, to *delight;* from its place of growth.—This genus, if it ought to be kept distinct from *Scirpus*, is better distinguished by its solitary spike than by any character taken from the jointed or dilated base of the style. It is again divided by some botanists; and the genera *Isolepis* Br. and *Eleogiton* Link constituted.

1. E. *palústris* Br. (*creeping Spike-rush*); stem rounded, root much creeping, stigmas 2, fruit lenticular plano-convex shorter than the 4 bristles, outer glume smaller than the rest. *Ed. Cat.* p. 5. Scirpus *L.: E. Bot.* t. 131.

Sides of ditches and wet marshy places, frequent. *Fl.* June, July. ♃.—"*Root* creeping (to a great length), black and shining, as well as the external *sheaths* of the *stem*. *Bristles*, in the flower only 4, longer than the ripe fruit, flattened, dilated at the base, and broader than the filaments. *Receptacle* elongated below the insertion of the filaments, so that the flower appears to be not quite sessile, as it is in *E. multicaulis*. *Germen* shorter and broader than in the next species, the *style* is also shorter. Again: the section of the stem is different from that of *E. multic.*, without any central pith, but with larger membranous tubes, surrounded by smaller ones:" *Wilson MSS.*

2. E. *multicaúlis* Sm. (*many-stalked Spike-rush*); stem rounded, root scarcely creeping, stigmas 3, fruit obovate triquetrous longer than the 6 bristles, outer glumes smaller than the rest. *Ed. Cat.* p. 5. Scirpus multic., *E. Bot.* t. 1187. Scirpus palustris β. *Linn. Lapp.* ed. 2.

Not uncommon, probably, in marshy places throughout the kingdom; but frequently passed by for the *E. palustris*. *Fl.* July. ♃. — "*Root* not creeping.[1] *Sheaths* of the stem brown, not shining; the *stems* are always inclined, frequently bent and almost prostrate. *Bristles* 6, shorter and narrower than in the former species, the base not dilated, shorter than the ripe fruit. The *receptacle* is elongated above the insertion of the filaments; hence the *germen* seems to be attenuated below. *Stem* with a stout central pith, with membranous tubes of looser texture interposed between it and the external part. Some of the *bristles* in the flower seem to be attached to the receptacle higher up than the base of the filaments, but still 3 of these bristles are at the exterior base of those filaments:" *Wilson MSS.*

3. E. *pauciflóra* Link (*Chocolate-headed Spike-rush*); stem rounded its sheaths leafless, spike ovate naked, the 2 outer glumes the largest obtuse but shorter than the spike, stigmas 3, style scarcely deciduous not jointed. Scirpus pauciflorus, *E. Bot.* t. 1029; *Ed. Cat.* p. 14. S. Bæothryon *Ehrh.*

Moors in Scotland, not unfrequent. In England, rare; near Yarmouth, Norfolk; Anglesea, and Bangor in Wales. *Fl.* July, Aug. ♃. — Habit of small plants of *E. palustris*. *Fruit* pale, obovate, triquetrous, terminated by the withered rigid *style*, not swollen at the base nor jointed, gradually tapering from the obtuse point of the fruit. *Roots* fibrous, sending out jointed runners.

4. E. *párvula* L. (*least Spike-rush*); stem without leaves or sheaths, spike terminal few-flowered, stigmas 3, bristles of the fruit retusely hispid, root fibrous, radical leaves roundish. Scirpus parvulus *Roem. and Sch. Syst. Veget.* ii. p. 124.

Found a few years ago on a muddy flat near Lymington, Hants; but the place having been lately much altered, and "the very spot, perhaps, now occupied by a swimming-bath," has since been searched for it in vain: *Rev. G. E. Smith.* This gentleman has obligingly sent me a specimen of this minute plant, which seems little known even upon the Continent. It is said to be annual, but that the roots creep by means of capillary stolones.

5. E. *cæspitósa* Link (*scaly-stalked Spike-rush*); stem rounded, or slightly compressed (*Wilson*), sheaths with subulate leaves, the two outermost glumes (fertile) longer than the very small spikes and terminating in long rigid points, stigmas 3, style deciduous, fruit mucronated with the narrow persistent base of the style. Scirpus cæspitosus, *E. Bot.* t. 1029; *Ed. Cat.* p. 14.

Moors and moist heathy places, every where. *Fl.* June, July. ♃.— A small species, 2—3 inches high. *Bristles* 6. *Fruit* obovate, trique-

[1] Not, indeed, as in *E. palustris*; but it certainly sends out root-stocks to the length of 2 or 3 inches, from which fibres proceed below and new shoots above. The *roots* cannot be called simply tufted. I dwell much on the characters of this and the preceding species, because I had myself fallen into an error in the *Fl. Scot.* in considering them varieties of each other. Sir J. E. Smith has well distinguished them in the *Engl. Flora*; and my friend Mr. Wilson, with his usual sagacity, has confirmed Smith's character and detected others, which I give in his own words.

trous, pale yellow, tipped with a mucro, as in most of the true *Scirpi*. This plant is called "*Deer's Hair*" in the Highlands, and yields an abundant food to sheep on the mountains in spring. Upon Ben Lawers I have found a *variety*, having the larger of the 2 outer glumes an inch long, 4 times the length of the spike.

6. E. *aciculáris* Roem. et Sch. (*least Spike-rush*); stem setaceous almost round, sheaths leafless, spike ovate acute, glumes equal acute, stigmas 3, bristles 2—3. *Ed. Cat.* p. 5. Scirpus acic., *E. Bot.* t. 749. Isolepis *Schlecht.* Scirpidium *Nees.*

Sides of lakes, and wet, sandy and marshy places, frequent. *Fl.* July, Aug. ♃. — The most slender and delicate of the *Spike-rushes*. *Root* fibrous with filiform runners. *Fruit* obovate, oblong, compressed, pale yellow, beautifully impressed with dotted lines, tipped with the almost globose dark base of the *style*.

7. E. *flúitans* (*floating Spike-rush*); stem (or rather floating root) compressed branched, spikes ovate, glumes nearly equal obtuse, stigmas 2, bristles none, fruit obovate plano-convex tipped with the narrow base of the style. Scirpus fluit. *L.: E. Bot.* t. 216. Isolepis *Br.: Ed. Cat.* p. 7. Eleogiton *Link, Lindl.*

Ditches and still lakes, and pools of water which are sometimes dried up. *Fl.* June, July. ♃.

8. Eriόphorum *Linn.* Cotton-grass.

Glumes of one valve, imbricated on all sides, nearly equal. *Fruit* accompanied by very long silky hairs. — Named from εριον, *wool*, and φερω, to *bear*.

* *Spike solitary.*

1. E. *alpínum* L. (*Alpine Cotton-grass*); stem triangular, leaves much shorter than the sheaths, spikes oblong-ovate. *E. Bot.* t. 311; *Ed. Cat.* p. 5.

It was discovered in the Moss of Restenet near Forfar, by *Mr. Brown* and *Mr. G. Don;* but that bog is drained and the plant has disappeared. *Fl.* June. ♃.

2. E. *vaginátum* L. (*Hare-tail Cotton-grass*); stem above triangular, sheaths below with long setaceous leaves, above leafless obtuse inflated, spike ovate. *E. Bot.* t. 873; *Ed. Cat.* p. 5.

Turf-bogs and barren moors, not unfrequent, especially in the mountainous parts of the north. *Fl.* March — May. ♃.

3. E. *capitátum* Host (*round-headed Cotton-grass*); stem rounded, sheaths below bearing linear subulate leaves, above leafless inflated obtuse, spike almost globose. *E. Bot.* t. 2387; *Ed. Cat.* p. 5.

Ben Lawers, by the side of a rivulet near perpetual snow: *G. Don. Fl.* July, Aug. ♃.

** *Spikes many.*

4. E. *polystáchion* L. (*broad-leaved Cotton-grass*); "stem round, leaves flat with a triangular point, stalks of the spikes smooth, hairs thrice the length of the spikes." *E. Bot.* t. 563; *Ed. Cat.* p. 5.

Bogs. *Fl.* April — June. ♃.

5. E. *pubéscens* Sm. (*downy-stalked Cotton-grass*); "stem angular upwards, leaves flat lanceolate with a triangular point, stalks of the spikes downy, hairs twice the length of the spike." *E. Fl.* v. i. p. 68; *Hook. in E. Bot. Suppl.* t. 2633; *Ed. Cat.* p. 5. E. angustif. *Poit.* E. latifolium, *Schrad. Germ.* v. i. p. 154 (*excl. syn.*).

Bogs and marshes, Scotland and Cambridgeshire: *Sm.* Anglesea: *Mr. Wilson.* South Kent: *Rev. G. E. Smith. Fl* April — June. ♃.

6. E. *angustifólium* Roth (*common Cotton-grass*); "stem nearly round, leaves linear triangular channelled towards the base, stalks of the spikes smooth, hairs 4 times the length of the spike." *E. Bot.* t. 564; *Ed. Cat.* p. 5.

Turf-bogs, and muddy meadows, common. *Fl.* April. ♃.

7. E. *grácile* Roth (*slender Mountain Cotton-grass*); "stem round with 3 slight angles, leaves triangular channelled towards the base, spikes longer than the bracteas, hairs twice the length of the spike." *E. Bot.* t. 2402; *Ed. Cat.* p. 5.

On Ben Lawers and the Clova Mountains, in micaceous soils. Cwm Idwell, North Wales. Near Croft: *Mr. Jos. Woods. Fl.* July. ♃. — I cannot satisfy myself of the validity of the characters of the many-spiked species of *Eriophorum*. With regard to the *E. pubescens*, it is certainly very common both in America and this country, and I had always taken it for *E. polystachion*. It is assuredly the *E. latifolium* of Schrader, for he makes its character to depend on the *scabrous* (not really pubescent) peduncles. Mr. Wilson is disposed to consider Mr. Wood's *E. gracile* as a good species, easily recognised by its many-ribbed glumes and decidedly pubescent fruit-stalks, as also by its very narrow short leaves.

9. Elýna *Schrad.* Elyna.

Spikelets 2-flowered, upper one *sterile*, lower one *fertile* (sometimes 1 is wanting), included in a broad sheathing bractea, and each within a convolute scale. *Cal.* 0. *Cor.* 0. — *Barren fl. Stam.* 3. — *Fertile fl. Pistil* 1. *Stigmas* 3. *Nut* obtusely trigonal, surrounded by its convolute scale. — In habit nearly allied to *Scirpus*, and still more closely to *Blysmus*; but the flowers are monœcious. It has not the urceolate corolla of *Carex*. — Named, I presume, from ελυω, to *involve* or *surround*, which the scale does the flower.

1. E. *caricína* M. et K. (*compound-headed Elyna*); spikelets aggregate compound. Kobresia caricina *Willd.*: *Ed. Cat.* p. 7. Schœnus monoicus, *E. Bot.* t. 1410.

Moors in Durham and Yorkshire. On Cronkley fell and about Widdy bank in Teesdale Forest. On Shroine-ach-Lochan, Perthshire. *Fl.* Aug. ♃.—Scarcely a span high, densely tufted, with narrow-linear *leaves*, shorter than the naked *stem*. *Bracteas* and *scales* remarkably convolute, brown. *Germen* oblong, scarcely trigonal.—There is a second species of this genus, *E. scirpina* of the continent.

10. CÁREX *Linn.* Carex, *or* Sedge.

Flowers collected into an imbricated *spike*. *Calyx* (as it is usually called), a scale.—*Barren fl. Cor.* 0.—*Fertile fl. Cor.* of 1 piece, urceolate, swollen. *Stigmas* 2—3. *Nut* triquetrous, included within the persistent corolla (which is thus considered to form part of the *fruit.*)—Name: supposed to be derived from κειρω, to *shear* or *cut*, in allusion to its sharp leaves and stems.

i. *Spike simple. Stigmas* 2.

* *Dicœcious.*

1. C. *dioíca* L. (*creeping separate-headed Carex*); spike simple dicœcious, fruit mostly ascending ovate shortly acuminated rough at the margin upwards, leaves and stem smoothish, root creeping. *E. Bot.* t. 543; *Ed. Cat.* p. 3.

Spongy bogs. *Fl.* May, June. ♃.—A span high. *Stigmas* 2.

2. C. *Davalliána* Sm. (*prickly separate-headed Carex*); spike simple dicœcious, fruit ovate much acuminated recurvato-deflexed rough at the margin upwards, leaves and stem rough, root tufted. *E. Bot.* t. 2123; *Ed. Cat.* p. 3.

Lansdown, near Bath; on the slope of a hill on which there is a clump of firs. *Fl.* June. ♃.—A span to a foot high.

** *Androgynous.*

3. C. *pulicáris* L. (*Flea Carex*); spike simple, upper half with barren flowers, fruit lax oblong-lanceolate acuminate reflexed, stigmas 2. *E. Bot.* t. 1051; *Ed. Cat.* p. 3.

Bogs, frequent. *Fl.* May, June. ♃.—A span high. *Stems* smooth. *Leaves* setaceous or filiform. *Fruit* dark brown, shining, smooth.

ii. *Spike simple. Stigmas* 3.

4. C. *rupéstris* All. (*Rock Carex*); spike linear with a few fertile lax flowers at the base, fruit obovate triquetrous rostrate appressed with an entire orifice scarcely longer than the obtuse or cuspidate scale. *Schkh. Car. n. n. n. n.* f. 200; *E. Bot. Suppl.* t. 2814. C. petræa *Wahl.; Schkh. k. k. k.* f. 139. C. attenuata *Br. in Frankl. App.* p. 753.

Discovered in 1836, on shelves of rocks extending from the small round lake at the top of Glen Callater, eastward to the "breakneck fall, Aberdeenshire:" *Mr. Dickie* and *Mr. Templeton*. *Fl.* Aug. ♃.—*Root* creeping. *Stem* 3—8 inches high, rough upwards. *Leaves* flat, ending in a long, attenuate, tortuous, rough, triangular point. *Barren*

flowers most numerous: *fertile* 3—6, lax; lower scales sometimes acute or cuspidate: *Boott.*

5. C. *pauciflóra* Lightf. (*few-flowered Carex*); spike simple of few flowers the uppermost barren, fruit lax lanceolato-subulate patent-reflexed, stigmas 3. *E. Bot.* t. 2041; *Ed. Cat.* p. 3. C. leucoglochin *Ehrh.*

Not unfrequent on the Highland mountains, in moory places. Crag Lake, Northumb.: *Mr. Winch. Fl.* June. ♃. — *Fruit* pale yellowish, striated.

iii. *Spike compound, androgynous. Styles* 2.

* *Spikelets capitate.*

6. C. *incúrva* Lightf. (*curved Carex*); spikelets sterile at their extremity collected into a roundish head, bracteas membranaceous shorter than the spikelets, fruit broadly ovate acuminated nearly entire at the point, stem obtusely angular, leaves channelled. *E. Bot.* t. 927; *Ed. Cat.* p. 3. C. juncifolia *All.*

Sandy sea-shores in the N. of Scotland. *Fl.* June ♃. — *Root* much creeping. *Stems* 2—4 inches high, curved. *Head* of *flowers* large.

** *Spikelets alternate, sterile at their base.*

7. C. *stelluláta* Gooden. (*little prickly Carex*); spikelets few (3—4) sterile at their base roundish distant, fruit ovate much attenuated plano-convex acute angular spreading rough at the margin. *E. Bot.* t. 806; *Ed. Cat.* p. 3.

Marshy and heathy places. *Fl.* May, June. ♃. — A span to a foot high. *Leaves* nearly as long as the *stem*. Distinguished by its few, much beaked *capsules*, placed in small distant roundish *spikelets*, and which spread, when ripe, in every direction.

8. C. *leporína* L. (*Hare's-foot Carex*); spikelets 3 rarely 4 ovate contiguous, fruit elliptic rostrate plano-convex smooth-nerved with a scariose bidentate finally entire orifice scarcely longer than the ovate obtuse scales which are scariose at the margins. *Schkh. F. F. F. F.* f. 129; *E. Bot. Suppl.* t. 2815; *Ed. Cat.* p. 3. C. Lachenalii *Schkh. Y.* f. 79. C. lagopina *Wahl.* C. approximata *Hoppe, Gaud.* (not *Allion.*) C. parviflora *Gaud.* (not *Host*).

Rocks on the west side of Loch-na-gar. August, 1836: *Mr. Dickie. Fl.* July. ♃. — *Root* fibrous. *Stem* 4—8 inches high, smooth, rarely rough below the spike. *Leaves* a line broad, shorter than the stem. *Spikelets* brown. *Bracteas* broad, ovate, obtuse, the lowest aristate, rarely foliaceous and larger than the spikelet. *Seed* elliptic, plano-convex, pale yellow: *Boott.*

9. C. *ovális* Gooden. (*oval-spiked Carex*); spikelets about 6 sterile at the base oval approximate, fruit as long as the calyx ovate-acuminate compressed plano-convex striated with a broad membranous margin rough at the edge, the beak bifid. *E. Bot.* t. 806; *Ed. Cat.* p. 3.

Bogs and marshy places. *Fl.* June. ♃. — *Stems* 1 foot high, triangular.

Spikelets brownish-green, shining. *Calyx-scales* concealing the *fruit*. *Bracteas* small, uppermost ones resembling the calyx-scales.

10. C. *cúrta* Gooden. (*white Carex*); spikelets sterile at their base about 5 rather distant elliptical, bracteas very minute (except the lower one), fruit broadly ovate acute plane above slightly convex beneath subobtusangular faintly striated as long as the scales. *E. Bot.* t. 1386; *Ed. Cat.* p. 3.

Bogs, in several places, not very general. *Fl.* June. ♃. — Distinguished by its pale elliptical *spikelets*, and imbricated, compressed, almost elliptical *fruit*.

11. C. *elongáta* L. (*elongated Carex*); spikelets numerous oblong lax rather distant sterile with minute pointed bracteas, fruit plano-convex oblong-acuminate many-ribbed scarcely bifid at the point patent longer than the scales. *Host Gram. Austr.* v. ii. t. 79 (*excellent*); *E. Bot.* t. 1920; *Ed. Cat.* p. 3.

Marshes, rare. Aldwark, Yorkshire. *Mr. Deakin.* Near Sheffield. Pit side at Over, Cheshire, 1827. Shropshire: *J. E. Bowman.* Near Manchester: *Mr. J. Martin* and *Mr. Buxton.* Ahagallan, county of Antrim, Ireland: *Mr. D. Moore.* *Fl.* June. ♃. — *Roots* tufted. *Stems* 1—1½ foot high, with 3 acute angles, rather rough, as well as the *leaves*. *Spikelets* brown. *Fruit* lax. I am indebted to Mr. Wilson for excellent specimens of this very distinct *Carex*.

12. C. *remóta* L. (*distant-spiked Carex*); spikelets several (small) sterile at their base very distant, fruit longer than the calyx oblong-ovate shortly acuminate plano-convex acute angular bifid at the point, bracteas very long and narrow leafy reaching beyond the spike. *E. Bot.* t. 832; *Ed. Cat.* p. 3. C. tenella *Schkh.*: *Sm. E. Fl.* v. iv. p. 88.

Woods and moist shady places. *Fl.* June. ♃. — Whole plant very slender, pale green, 1—1½ foot high. Resembling the following in many respects; but "the *stem* has blunter angles; the lowest *bractea* is much longer than in that species; the *leaves* are compresso-canaliculate (with incurved sides) and much narrower; the *cal.-scales*, too, are narrower, their nerve quite smooth, discontinued below the membranous summit:" *W. Wilson.*

13. C. *axilláris* Gooden. (*axillary-clustered Carex*); spikelets several sterile at their base very distant, fruit longer than the calyx oblong-ovate shortly acuminate plano-convex acute angular the beak deeply bifid, bracteas setaceous lower one long, the rest scarcely so long as the spike. *E. Bot.* t. 993; *Ed. Cat.* p. 3.

Marshes, rare. Putney, by London; and Earsham, Norfolk. Over, Cheshire. Near Manchester: *Mr. Buxton* and *Mr. J. Martin.* Near York: *Mr. Baines.* Killin, Scotland. Near Crichton Castle, Edinb. *Fl.* June. ♃. — *Stem* with 3 acute angles; *spikelets* with more numerous *flowers* than the last, lower one compound. *Cal.-scales* with 2, close, green, generally rough nerves, reaching to the summit, hence more rigid.

**** Spikelets alternate, sterile at their extremity.*

14. C. *intermédia* Gooden. (*soft brown Carex*); inferior and terminal spikelets fertile, all crowded into an oblong interrupted head, the intermediate ones sterile, fruit acutely margined longer than the calyx, bracteas membranaceous the lower ones somewhat leafy, stem triangular, leaves plane. *E. Bot.* t. 2042; *Ed. Cat.* p. 3.

Marshy ground and wet meadows. *Fl.* June. ♃. — *Root* creeping, running deep into the mud. *Stems* 1—1½ foot high. *Spikes*, or heads of spikelets, similar in general appearance to the following. *Fruit* large, not so distinctly winged as gradually flattened towards the margin, more striated on its flat or inner side, the *beak* broader at its summit. *Stem* much taller and the *leaves* less confined to the lower part of it.

15. C. *arenária* L. (*Sea Carex*); lower spikelets fertile, upper ones sterile all crowded into an oblong interrupted head, fruit with a membranous margin shorter than the calyx, bracteas membranaceous lower ones somewhat leafy, stem triangular, leaves plane. *E. Bot.* t. 928; *Ed. Cat.* p. 3.

Sandy sea-shore, frequent, where it is of great service in binding the soil. *Fl.* June. ♃. — *Roots* excessively long and creeping. *Stems* rough, 8 inches to a foot high. *Fruit* with a green membranous wing.

16. C. *divísa* Huds. (*bracteated Marsh Carex*); spikelets crowded into a somewhat ovate head, the lower ones simple or compound with a leafy erect bractea at their base, fruit roundish-ovate convex on one side slightly concave on the other acutely angular cloven at the point. *E. Bot.* t. 1096; *Ed. Cat.* p. 3.

Marshy places, especially near the sea; principally in the east of England, and in Angus-shire. *Fl.* May, June. ♃. — *Stems* about 1 foot high; lower *bracteas* mostly with a long leafy point.

17. C. *muricáta* L. (*greater prickly Carex*); spike oblong of 4—6 compact or approximate spikelets with brownish ovate pointed scales, fruit ovate-acuminate spreading with acute rough margins. *E. Bot.* t. 1097; *Ed. Cat.* p. 3. C. spicata *Huds.*

Marshy and especially gravelly pastures. *Fl.* May, June. ♃. — 1—2 feet high, slender. *Bracteas* small, lanceolate, subsetaceous. *Fruit* yellow-brown, broad, rather large.

18. C. *divúlsa* Gooden. (*grey Carex*); spike elongated lax consisting of 5—6 spikelets which are subremote below with pale membranous acute scales, fruit ovate acute suberect rough at the point with blunt margins. *Boott: E. Bot.* t. 629 (*young*); *Ed. Cat.* p. 3. C. muricata *β. Wahl.*

Moist shady pastures, not rare. *Fl.* May, June. ♃. — This species assuredly much resembles the preceding: the *fruit* I cannot, in any respect, find different. The colour is paler, the *spikes* more elongated and slender, with more distant *spikelets*.

***** Spikelets compound.*

19. C. *vulpína* L. (*great Carex*); spikelets compound collected

into a cylindrical crowded spike, fruit ovate-acuminate plano-convex acute angular divergent, stem very acutely triangular, leaves broad. *E. Bot.* t. 307; *Ed. Cat.* p. 3. C. nemorosa *Willd.*

Wet shady places, especially near water. *Fl.* June. ♃. — Two feet or more high; *stem* stout, rough, as well as the broad *leaves* at their margin. *Bracteas* small, setaceous. *Spike* large, greenish. *Fruit* pale, rough at the margin of the lengthened *beak*, and bifid at the point.

20. C. *teretiúscula* Gooden. (*lesser panicled Carex*); spike compound oblong consisting of ovate compact spikelets with acute membranous scales, fruit subplano-convex with 3—4 central nerves on the convex surface stipitate ovate ending in an acuminate winged serrulate bidentate beak. *Boott: E. Bot.* t. 1065; *Ed. Cat.* p. 3.

Boggy, watery meadows, in various places. *Fl.* May, June. ♃. — This I had, in the *Fl. Scot.*, considered a *var.* of the following. It is much smaller, growing in separate tufts, with far narrower *leaves*, of a glaucous hue, blunter *stems*, 18—30 inches high, their angles roughish. *Bracteas* membranous, ovate, the lowest sometimes foliaceous. *Spike* 1—1½ inch long.

21. C. *paniculáta* L. (*great panicled Carex*); spike panicled consisting of ovate spikelets arranged on elongated diverging branches of a common axis, fruit deltoid or subreniform plano-convex many-nerved margined above and ending in an acuminate winged serrated bidentate beak. *Boott: E. Bot.* t. 1064; *Ed. Cat.* p. 3.

Swampy and spongy bogs. *Fl.* June. ♃. — *Roots* densely tufted. Much larger than the last, and rougher, often 5 ft. high. *Stem* striated with 3 acute rough angles. *Leaves* broad. *Spike* 2—4 inches long. *Bracteas* ovate, acute or cuspidate, rarely foliaceous. Base of the fruit broad, truncated with a central notch and thus less distinctly stipitate than the preceding, many-nerved on both surfaces. In this and the former species a central, sometimes winged, line goes from the convex surface of the fruit along the beak, giving it a triangular form: *Boott.* The *C. paradoxa* of continental writers appears to be almost intermediate between them.

iv. *Terminal spike androgynous, the rest fertile. Stigmas* 3.

22. C. *Váhlii* Schkh. (*close-headed Alpine Carex*); spikes 3—4 roundish or oblong aggregated the terminal one with barren flowers at its base, stigmas 3, fruit obovate scabrous above with minute crystalline prickles shortly beaked longer than the ovate obtuse calyx, stem triangular rough at the edges. *Grev. in E. Bot. Suppl.* t. 2666; *Ed. Cat.* p. 3. C. alpina *Vahl.*

Rocks above the head of Loch Callater in Braemar. Glen on the south side of Glen Dole. *Fl.* Aug. Sept. ♃.

23. C. *canéscens* L. (*hoary Carex*); spikelets 3—5 terminal one barren at the base, fertile sessile except the lowest which is on a short stalk and subremote, fruit oblong oval obtuse

triquetrous nerved bidentate pellucidly asperate shorter than the ovate cuspidate scales. *Ed. Cat.* p. 3. C. Buxbaumii *Wahl.*; *Willd.* C. polygama *Schkh. X. G. g.* f. 76.

On a small island in Lough Neagh, Ireland: *Mr. Moore. Fl.* July. ♃. — *Root* creeping. *Stem* 1—2 ft. high, erect, acutely triangular, rough, leafy at the base, and clothed with purple sheaths which are torn and reticulated at their edges. *Leaves* straight shorter than the stem. Middle *spikes* smallest, more or less approximate. *Bracteas* rough, auricled, but without sheaths, the lowest sometimes longer than the stem; upper ones setaceous. *Fruit* glaucous-green, stained with brown, shorter at the base of the spikelets than the cuspidate scales, which are brown with a pale green nerve. — Linnæus confounded *C. alpina* Vahl (*C. Vahlii* Schkh.) and *C. curta* Good. with this species. The specimens from Lapland are of the present plant. *C. curta* was described by the late Bishop of Carlisle, in the *Linn. Trans.* v. ii. p. 145. in 1792, eleven years before Wahlenberg, in *Act. Holm.* (1803), described the present species under the name of *C. Buxbaumii.* The original name of *C. canescens* must be restored to it: *Boott.*

24. C. *atráta* L. (*black Carex*); sheaths scarcely any, fertile spikes pedunculated ovate inclined the terminal one with sterile flowers at the base, bracteas subfoliaceous, fruit roundish-ovate compressed with the beak bifid at the point. *E. Bot.* t. 2044; *Ed. Cat.* p. 3.

On the Welsh mountains; Snowdon, rare. Highland mountains, Scotland. *Fl.* June. ♃. — About 1 foot high. *Leaves* unusually broad for the size of the plant. *Calyx-scales* dark brown, opaque. *Fruit* pale yellowish-brown.

v. *Terminal spike barren, solitary (or in* 27, 28, *and* 29, *sometimes more than* 1); *the rest fertile.*

* *Stigmas* 2.

25. C. *Goodenówii* Gay (*Ann. des Sc. Nat.* March, 1839); spikes cylindrical, barren 1 rarely 2, fertile 2—4, lower one shortly pedunculate, sheaths none, lower bract subfoliaceous with small round dark auricles, scales elliptic or oblong obtuse, fruit plano-convex elliptic or obtuse with filiform nerves which disappear upwards and an obsolete or distinct beak. *Boott.* C. cæspitosa *Hook. Br. Fl. and modern authors* (not *L.*); *E. Bot.* t. 1507; *Ed. Cat.* p. 3. C. angustifolia, *E. Fl.* v. iv. p. 127.

Marshes and wet pastures, frequent. *Fl.* May, June. ♃. — A foot or more high. *Stem* weak, acutely triangular. *Root* creeping, laxly cæspitose. *Fruit* posteriorly flat, 3—5-nerved, anteriorly convex, 7—9-nerved.

26. C. *rígida* Good. (*rigid Carex*); spikes cylindrical or oblong, barren 1, fertile 2—4, lower one shortly pedunculated, sheaths none, lower bract subfoliaceous, auricles subrotund small black, scales elliptic or oblong obtuse black, fruit oblong or elliptic obtuse plano-convex without nerves with an obsolete beak or none. *E. Bot.* t. 2047; *Ed. Cat.* p. 3. C. cæspitosa β. *Hook. Scot.* v. i. p. 268. C. saxatilis, *Fl. Dan.* (not *L.*)

On Snowdon, the Cheviots, and especially summits of all the more elevated Highland mountains. *Fl.* June, July. ♃. — 4—6 inches high, laxly cæspitose. *Leaves* flat, about as long as the firm acutely-triangular *stem*, which is rough at top.

27. C. *aquátilis* Wahl.? (*straight-leaved Water Carex*); sheaths none, bracteas long foliaceous fertile, spikes nearly sessile cylindrical elongated attenuated below often acuminated with barren flowers at the extremity, fruit roundish-obovate with a short entire point, stem smooth obtusely triangular, leaves long straight narrow-linear not fibrous at their bases. *Grev. in E. Bot. Suppl.* t. 2758; *Ed. Cat.* p. 3. C. rigida β. *Hook. Br. Fl.* ed. 2. p. 397.

Gathered by *Mr. Drummond*, *Dr. Greville*, *Mr. Burchell*, and myself, on the table lands in boggy situations in the mountains of Clova; and since by *Dr. Graham* and his party in several places in the same country. *Fl.* July, Aug. ♃. — 1—2 feet high. Dr. Boott is led to doubt if this be really the *C. aquatilis* of Wahlenberg, since that author describes his plant as having scales much narrower than the fruit, which is not the case in ours, and the place of growth and size being so very different; "in ipsis fluviis et lacubus" — "sæpe altitudinem humanam attingens" — "ad radicem sæpius pollicem crassa." Its affinity is with *C. acuta*.

28. C. *acúta* L. (*slender-spiked Carex*); spikes cylindric elongate slender, barren 1—3, fertile 3—4, more or less remote and barren at top, lower pedunculated often attenuate and interrupted at the base, sheaths none, bracteas long foliaceous, lower often surpassing the stem with pale or ferruginous elongate auricles, fruit oval biconvex beaked entire nerved green with rusty stains generally shorter (or longer) than the dark lanceolate acute or obtuse scale. *E. Bot.* t. 580; *Ed. Cat.* p. 3. C. gracilis *Curt.*

Moist meadows and wet pastures, frequent. *Fl.* May. ♃. — 2—3 ft. high. *Stem* acutely triangular, rough. *Leaves* broad, flat, sheathing in 3 rows, green. Fertile *spikes* often very long, verticillate at the base, and pendulous.

29. C. *cæspitósa* L. (*tufted Bog Carex*); spikes cylindrical, barren 1 rarely 2, fertile 2—3, often approximate erect thickish, lower one very shortly pedunculate or sessile, upper often barren at top, sheaths none, lower bractea subfoliaceous abbreviate with large oblong pale auricles, fruit compressed elliptic or oblong beaked often emarginate nerved generally longer and broader than the black oblong obtuse or lanceolate scale. C. stricta *Good.* (1792) (not *Lamarck Encycl. Method.* v. iii. p. 387. 1789); *Hook. Br. Fl.* ed. 4; *E. Bot.* t. 914. C. cæspitosa *Huds.* β. *Lightf.*

Marshes, common. *Fl.* April, May. ♃. — 2 feet or more high, densely cæspitose. *Leaves* subconduplicate, narrow, glaucescent, filamentous at the base, shorter than the firm acutely triangular rough stem. *Fruit* whitish, pulverulent, deciduous, always compressed, in 8—9 rows. — The name, and the remarks of Linnæus (*Iter Scaniæ*, p. 207. 241), clearly refer to this species. He confounded it with *C. Goodenowii* Gay, of which a specimen alone exists in his Herbarium. Hence *Goodenough*

naturally considered it the true *C. cæspitosa* L., and called the present species *C. stricta;* a name, however, that had been given to an *American species* by *Lamarck* three years before *Goodenough's* paper on *British Carices* was read to the Linnæan Society.

30. C. *saxátilis* L., *not* Oed. (*russet Carex*); sheaths none, bracteas foliaceous, fertile spikes ovate obtuse the lower one stalked, scales oblong, fruit spreading elliptical inflated with a very short beak bifid at the point. *Ed. Cat.* p. 3. C. pulla *Gooden.: E. Bot.* t. 2045.

Rare; near springs on the higher regions of the Scottish mountains. Ben Lomond. Breadalbane range, not unfrequent. Glen Tilt. Clova (where it sometimes attains a height of 2 feet). Cairn Garidh, near Ben Nevis. Mountains above Loch Scavig in Skye. *Fl.* June. ♃. — 6—8 inches high. *Leaves* remarkably acuminated, slightly keeled at the back, with trigonous points resembling some of the narrow-leaved species of *Eriophorum*. *Spikes* almost shaggy with the long white *stigmas*. *Scales* shining, of a deep chocolate brown. *Fruit* at first pale, dark brown when ripe. — This proves, from the Linnæan Herbarium, and from a specimen in the Banksian Herbarium, from Dr. Solander, to be the true *saxatilis* of Linnæus, a plant which has been greatly misunderstood: *Boott.*

** *Stigmas* 3.

† *Fruit glabrous.*

‡ *Fertile spikes abbreviated, subsessile.*

31. C. *fláva* L. (*yellow Carex*); sheaths short about equal to the flower-stalks, bracteas long leafy, sterile spike distinctly stalked, fertile spikes roundish-oval rather distant, fruit obovate turgid spreading with a long more or less deflexed beak bifid at the point. *E. Bot.* t. 1294; *Ed. Cat.* p. 3.

Turfy bogs, frequent. *Fl.* May, June. ♃. — 6—8 inches or a foot high. *Bracteas* very foliaceous, the lower one resembling the broad acuminated *leaves*. *Spikes*, and indeed the whole plant, of a yellowish hue.

32. C. *Oedéri* Ehrh. (*Oederian Carex*); sheaths short about equal to the flower-stalks, bracteas long leafy, sterile spike almost sessile, fertile ones roundish-oval approximate lower one sub-compound, fruit obovate turgid spreading with a long nearly straight beak bifid at the point. *E. Bot.* t. 1773; *Ed. Cat.* p. 3. C. flava β. *Hook. Scot.* v. i. p. 266.

Bogs and moist heaths, frequent. *Fl.* May, June. ♃. — I scarcely see how this is to be distinguished from the last, but by the characters just mentioned: and these appear to depend very much upon the stunted growth of the plant, which is not more than 4 or 5 inches high; all the *spikes* also are more compact and almost clustered. Yet many of our most acute British Botanists consider it distinct; among them Mr. Dalton and Mr. W. Wilson, to whose authority I yield.

33. C. *exténsa* Gooden. (*long-bracteated Carex*); sheaths very short (scarcely any) with extremely long foliaceous bracteas, fertile spikes nearly sessile oblong, scales slightly mucronate,

fruit ovate striated with a short acuminated beak bifid at the point, leaves very narrow, stem smooth. *E. Bot.* t. 833; *Ed. Cat.* p. 3.

Marshes, rare, near the sea, on the E. and S. of England. Near Liverpool and shores of the Menai. Coast of Fifeshire. Ireland. *Fl.* June. ♃. — About 1 foot high. Quite distinct from *C. flava*, with which it has been confounded, in its very narrow convolute *leaves*, never spreading and short-beaked *fruit*.

‡‡ *Fertile spikes stalked, erect.*

34. C. *fúlva* Gooden. (*tawny Carex*); sheaths elongated shorter than the peduncles, bracteas foliaceous, scales acute, fertile spikes oblong-ovate distant, fruit broadly ovate ascending glabrous acuminated into a straight beak bifid at the point, stem scabrous. *E. Bot.* t. 1295. — β. female spikes 3 on longer stalks, beak smoother with a more distinct membranous orifice. *Ed. Cat.* p. 3. C. speirostachya *Sw.*: *E. Bot. Suppl.* t. 2770. C. Hosteana *DC.* C. Hornschuchiana *Hoppe*.

Boggy meadows, not unfrequent. — β. Mugdoch and elsewhere in Scotland. *Fl.* June. ♃. — 1 ft. high; with the habit of *C. distans*, but smaller; with shorter, more lax, paler-coloured and fewer-flowered *spikes*; and acute, not mucronate, *cal.-scales*.

35. C. *palléscens* L. (*pale Carex*); sheaths hardly any, fertile spikes pedunculated oblong-cylindrical scarcely pendulous, bracteas subfoliaceous, fruit obovate-elliptical tumid striated obtuse glabrous. *E. Bot.* t. 2185; *Ed. Cat.* p. 3.

Marshy places, frequent. *Fl.* June. ♃. — A foot or more high. *Leaves* slightly downy. *Spikes* obtuse, pale green. *Fruit* very obtuse.

36. C. *punctáta* Gaud. *not* Nees (*dotted-fruited Carex*); barren spike 1 rarely 2 with obtuse ferruginous scales, fertile 3 rarely 4 cylindrical erect stalked with sheathing bracteas, fruit ovate tumid glabrous shining pellucidly punctate diverging of a light green obsoletely nerved except at the margins with a linear bidentate beak larger than the ovate short aristate scales, which are pale ferruginous with a green nerve. *Boott*: *Ed. Cat.* p. 3; *Schkh. Car. Suppl.* tab. 6. f. 1. C. Helvetica *Schleich.* C. distans β. *Deslongch. Fl. Gall.* p. 297.

Discovered several years ago, by *Dawson Turner, Esq.*, near Beaumaris, N. Wales (*Herb. Sm. in Mus. of Linn. Soc.*). Banks of the Menai, near Bangor: *Mr. W. Wilson*. *Fl.* June. ♃. — *Root* creeping, composed of strong woody fibres. *Stem* 12—18 inches high, erect, smooth, leafy at the base. *Leaves* shorter than the stem. *Barren spikes* rarely geminate: *scales* rarely acute or subaristate, the lowest sometimes bracteæform. *Fertile* more or less remote, the two upper subapproximate, the lowest rarely 3 inches from the middle one. *Bracteas* with striated sheaths, varying in length. *Peduncles* rough. *Beak* about one third the length of the *fruit*. *Seed* triangular, pellucidly punctate like the fruit. — Differs from *C. distans* in its smaller size, its light green, more approximate spikes, its more erect stem, and in its fruit: *Boott*.

37. C. *dístans* L. (*loose Carex*); barren spike solitary with obtuse scales, fertile 2—3 remote erect oblong stalked the barren stalks longer than the sheathing bracteas, scales mucronate, fruit ovate triquetrous equally ribbed smooth or rough at the upper margins and at the edges of the narrow short bifid beak. *Boott: E. Bot.* t. 1234; *Ed. Cat.* p. 3.

Muddy marshes near the sea, probably in many places. About Anglesea: with *C. binerv.*, in boggy ground, coast of Kent. Coast near Montrose. *Fl.* June. ♃. — 8 inches to 1 or 1½ foot high, slender. *Spikes* very distantly placed, their rather long *peduncles* entirely concealed by the sheathing bases of the *bracteas*. *Scales* of the *calyx* rather pale brown. *Fruit* green, inclining to brown when ripe.

38. C. *binérvis* Sm. (*green-ribbed Carex*); barren spike solitary with obtuse scales, fertile 3—5 the upper ones sometimes subapproximate, the lower remote erect cylindrical often elongated bearing barren flowers in their upper half, and some of them occasionally compound at the base, the stalks longer than the sheathing bracteas, scales mucronate, fruit ovato-triquetrous with a smooth rather broad bifid beak, and two principal green submarginal nerves on the outer surface. *Boott: E. Bot.* t. 1099; *Ed. Cat.* p. 3.

Dry heaths and moors, frequent. *Fl.* June. ♃. — Generally taller, and in every part more rigid, than the last. *Calyx-scales* and especially the *fruit*, more highly coloured, the latter more acutely triquetrous with two nerves near the margin on the back, which are always green, though the rest of the fruit be more or less brown. But there are states, of which Mr. W. Wilson and I scarcely know whether they should be referred to the one or to the other.

39. C. *lævigáta* Sm. (*smooth-stalked beaked Carex*); sheaths elongated shorter than the flower-stalks, bracteas foliaceous, fertile spikes drooping cylindrical, all the scales acuminated or mucronate, fruit ovate triangular striated with rather a long acuminated beak bifid at the point. *E. Bot.* t. 1387; *Ed. Cat.* p. 3.

Marshes and boggy thickets in several places both of England and Scotland. Anglesea. Near Belfast. *Fl.* June. ♃. — 2—3 ft. high. *Leaves* broad, but rather short. It has rarely more than one *sterile spike*, which is always triquetrous.

40. C. *panicéa* L. (*Pink-leaved Carex*); sheaths elongated shorter than the flower-stalks, fertile spikes subcylindrical with distant flowers, bracteas leafy, fruit subglobose somewhat inflated obtuse glabrous entire at the point. *E. Bot.* t. 1505; *Ed. Cat.* p. 3.

Marshy places and bogs, common. *Fl.* June. ♃. — *Stems* 1—1½ ft. high. *Leaves* rather broad, glaucous, rough at the edges, much resembling, as Sir J. E. Smith observes, the foliage of *C. recurva;* but the characters of the two are widely different. *Calyx-scales* dark brown, the keel green. *Fruit* greenish-brown.

41. C. *phæostáchya* Sm. (*short brown-spiked Carex*); barren

spike solitary, fertile ones 1—3 erect lax-flowered distant stalked, the stalks longer than the sheathing subfoliaceous bracteas, fruit smooth obsoletely nerved elliptic-lanceolate with an acuminate obliquely bifid recurved beak, longer than the ovate scale. (*Boott.*) *Forst. in E. Bot. Suppl.* t. 2731; *Ed. Cat.* p. 3. C. salina *Don Herb. Brit.* n. 216 (not *Sw.*). C. Mielichoferi *Sm.: Forst. in E. Bot.* t. 2273. C. Scotica *Spreng.* C. panicea *β. Wahl.*

Highland mountains. Craigchailliach: *Borrer.* Cairngorum and Ben-y-mac-dowie: *G. Don.* Clova: *J. D. Hooker. Fl.* July. ♃.— In deference to the opinion of Mr. Borrer, I rank this as a species; but it is probably only a var. of *C. panicea*, with less glaucous (greener) herbage and a bifid beak to the fruit. The above synonyms are referred hither at the suggestion of Dr. Boott.

42. C. *depauperáta* Gooden. (*starved Wood Carex*); sheaths much shorter than the flower-stalks, fertile spikes erect remote very few-flowered, fruit large nearly globose inflated terminating in a long beaked bifid point. *E. Bot.* t. 1098; *Ed. Cat.* p. 3.

Dry woods, rare. Godalmin, Surrey; Charlton wood, Kent; and near Forfar. *Fl.* May, June. ♃.— 1—1½ ft. high. *Spikes* very distant; their few *flowers*, and large inflated beaked *fruit*, decidedly marking the species.

‡‡‡ *Fertile spikes stalked, drooping*

§ *Fertile spikes abbreviated.*

43. C. *capilláris* L. (*dwarf capillary Carex*); common sheath half the length of the flower-stalks, fertile spikes few-flowered lax drooping, fruit oblong-obovate acuminate as long as the ovate membranous deciduous calyx. *E. Bot.* t. 2069; *Ed. Cat.* p. 3.

Plentiful on some of the Highland mountains, especially the Breadalbane range. On Ben-y-Gloe. *Fl.* June, July. ♃.— 2—6 inches high. *Leaves* mostly radical, scarcely half the length of the *stem*, soft. One single *bractea* includes with its sheathing base the lower part of all the peduncles. *Sterile spike* single, frequently below the *fertile ones*. *Fruit* dark brown, shining.

44. C. *limósa* L. (*Mud Carex*); sheaths extremely short scarcely any, fertile spikes oblong-ovate pendulous, bracteas subsetaceous, calyx acute as long as the fruit, fruit elliptico-rotundate striated shortly mucronated. *E. Bot.* t. 2043; *Ed. Cat.* p. 3. — *β.* irrigua; leaves broader, scales longer than the fruit. C. irrigua *Sm.: Ed. Cat.* p. 3.

Bogs and marshes. Rare in England; mostly found in the northern and mountainous parts: more frequent in Scotland and Ireland. *Fl.* June. ♃.— *Root* ascending obliquely. *Stems* 8—10 inches high. *Leaves* very narrow. *Fertile spikes* 2. *Cal.-scales* dark brown, subapiculate. *Fruit* greenish-brown.

45. C. *rariflóra* Sm. (*loose-flowered Alpine Carex*); sheaths very short almost none, fertile spikes narrow-oblong very few-

flowered lax pendulous, bracteas subsetaceous, calyx acute longer and broader than the fruit, fruit ovate somewhat acute striate. *E. Bot.* t. 2516; *Ed. Cat.* p. 3. C. limosa γ. *Wahl.*

Bog at the head of Glen Dole, Angus-shire. Several stations in Sutherland, as Oikel, Ben Hope, Ben Luyal: *Mr. M'Nab, Dr. Graham, Mr. Home,* and *Mr. Tyacke. Fl.* June. ♃. — *Root* creeping. *Stems* about 6 inches high. *Leaves* about half as long, but broader than those of the last, with which it has, I think, been improperly united by Wahlenberg. *Cal.-scales* obtuse, very deep brown, with a pale dorsal line, and forming a striking contrast with the pale-coloured *fruit.*

46. C. *ustuláta* Willd. (*scorched Alpine Carex*); sheaths elongated shorter than the flower-stalks, fertile spikes oval pendulous, bracteas scarcely leafy, fruit elliptical shortly acuminated (black) bifid at the point. *E. Bot.* t. 2404; *Ed. Cat.* p. 3.

Ben Lawers, very rare: *G. Don. Fl.* July. ♃. — *Stem* about a span high, with broad, short *leaves,* principally from the base. *Fertile spikes* 2 or 3, on slender drooping stalks, and of a deep purple black colour.

§§ *Fertile spikes elongated.*

47. C. *strigósa* Huds. (*loose pendulous Carex*); sheaths elongated equal to the flower-stalks, fertile spikes slender filiform nearly erect, fruit ovato-lanceolate nerved slightly recurved loosely imbricated, leaves rather broad. *E. Bot.* t. 994; *Ed. Cat.* p. 3.

Groves and thickets in several parts of the east and middle of England. Cotterell wood, Cheshire: *Dr. J. B. Wood.* Arniston woods, Edinb. *Fl.* May, June. ♃. — 1—2 feet high. *Cal.-scales* a little shorter than the *fruit.*

48. C. *sylvática* Huds. (*pendulous Wood Carex*); sheaths half as long as the flower-stalks, fertile spikes filiform rather slender slightly drooping, fruit broadly ovate much acuminated cleft at the point, leaves narrow. *E. Bot.* t. 995; *Ed. Cat.* p. 3.

Moist woods, frequent. *Fl.* May, June. ♃. — Similar to the last; but the *spikes* are shorter and broader; the *fruit* very different, glabrous, and so acuminated as to terminate in a long *beak. Cal.-scales* longer in proportion. Linnæus tells us that this plant, when carded and dressed, is employed by the Laplanders to protect their feet from the cold.

49. C. *péndula* Huds. (*great pendulous Carex*); sheaths elongated nearly equal to the flower-stalks, fertile spikes cylindrical very long and drooping, fruit ovate shortly acuminate bifid at the extremity closely imbricated, leaves broad. *E. Bot.* t. 2315; *Ed. Cat.* p. 3.

Moist, wooded and shady places, not very general. *Fl.* May, June, ♃. — 3—5 ft. high. Well distinguished by its long, pendulous, cylindrical *spikes.*

50. C. *Pseudo-cypérus* L. (*Cyperus-like Carex*); sheaths scarcely any (except sometimes to the lowermost bractea), fertile spikes upon long footstalks cylindrical pendulous, bracteas

very leafy, calyx setaceous, fruit oblong very much acuminate cloven at the tips striated. *E. Bot.* t. 242; *Ed. Cat.* p. 3.

Moist places, by the sides of lakes and ponds; not very general. *Fl.* June. ♃. — *Stems* 2—3 feet high, acutely triangular. *Leaves* ½ an inch broad. One of the best marked and most beautiful of the genus.

51. C. *recúrva* Huds. (*glaucous Heath Carex*); sheaths short scarcely any, bracteas leafy, fertile spikes cylindrical scarcely drooping densely imbricated on long slender stalks, fruit obovato-globose slightly downy entire at the small point. *E. Bot.* t. 1506; *Ed. Cat.* p. 3. C. Micheliana, *E. Bot.* t. 2236 (*fr. glabrous*). C. stictocarpa *Sm.: D. Don in E. Bot. Suppl.* t. 2772.

Moist meadows, moors, groves, and alpine rocks. *Fl.* June. ♃. — *Leaves* mostly radical, very glaucous. *Stems* about 1 foot high. *Fertile spikes* 2, *barren* ones often 2 or 3. *Fruit* closely placed, brownish when ripe.

†† *Fruit downy.*

‡ *Fertile spikes sessile.*

52. C. *précox* Jacq. (*vernal Carex*); sheaths short (scarcely any) equal to the flower-stalks, fertile spikes oblong approximate, scales elliptic-oblong, fruit obovate subtriquetrous acute downy. *E. Bot.* t. 1099; *Ed. Cat.* p. 3.

Dry pastures and heaths. *Fl.* April, May. ♃. — *Root* creeping. *Stems* 3 inches to a foot high. *Leaves* short, rather broad. Lower *bracteas* small, but leafy; upper ones very minute. Its numerous yellow *anthers* are conspicuous at an early season of the year.

53. C. *pilulífera* L. (*round-headed Carex*); sheaths none, bracteas small subfoliaceous, fertile spikes sessile roundish approximate, scales strongly mucronate, fruit obovato-globose acute and downy, stems weak scabrous. *E. Bot.* t. 885; *Ed. Cat.* p. 3. C. montana L.

Moory ground, frequent. *Fl.* June. ♃. — *Stems* varying much in height, from 6—12 inches, slender. Readily distinguished by the pubescent, almost sphærical *fruit*, which gives name to the species.

‡‡ *Fertile spikes stalked.*

54. C. *tomentósa* L. (*larger downy-fruited Carex*); sheaths scarcely any, fertile spikes about 2 nearly sessile shortly cylindrical obtuse with acute scales, fruit globose densely downy with a short beak scarcely bifid at the point. *E. Bot.* t. 2046; *Ed. Cat.* p. 3.

Meadows near Merston Measy, Wiltshire: *Mr. Teasdale*, 1799. Gathered there again by *Mr. Borrer* in 1838. *Fl.* June. ♃. — A well marked and very rare species, no other station being known for it in Britain, than that just mentioned, whence I have an original specimen, given me by the *Rev. James Dalton.*

55. C. *clandestína* Gooden. (*dwarf silvery Carex*); bracteas membranous, fertile spikes remote of very few flowers concealed by the bracteas, fruit broadly obovato-triquetrous slightly downy

contracted at the base, leaves longer than the stems channelled rough rigid. *E. Bot.* t. 2124; *Ed. Cat.* p. 3.

On the limestone rocks at St. Vincent's, Bristol. Downs, near Boyford, Wilts, and in great abundance on Salisbury Plain, between Stonehenge and Heytesbury: *Mr. Borrer.* Brean Down, Weston-super-mare: *Rev. Thos. Butler.* *Fl.* May. ♃. — Remarkable for the few *flowers* of its fertile *spikes*, which are concealed by the comparatively large membranaceous *bracteas*, as the short *stems* are by the *leaves*.

56. C. *digitáta* L. (*fingered Carex*); bracteas membranaceous sheathing, spikes filiform erect lax, fertile about 3 longer than the barren one, fruit obovato-triquetrous downy on a short stalk, leaves plane. *E. Bot.* t. 615; *Ed. Cat.* p. 3.

Rare in woods in limestone countries: near Bath and Bristol; Wind Cliff, Monmouthshire: *Mr. Borrer;* and Thorp-arch and Mackershaw wood, Ripon, Yorkshire. *Fl.* May. ♃. — *Root* of tufted fibres. *Stem* 8—10 inches high. *Leaves* soft, shorter than the stem. I do not see how the *C. ornithopoda* Willd. differs from this.

vi. *Terminal spikes barren, 2 or more; the rest fertile. Stigmas* 3.

* *Fruit downy.*

57. C. *filifórmis* L. (*slender-leaved Carex*); glabrous, sheaths scarcely any, bracteas long very narrow, fertile spikes shortly pedunculate oblong-cylindrical their scales cuspidate, fruit ovate shortly beaked deeply bifid at the point very pubescent. *E. Bot.* t. 904; *Ed. Cat.* p. 3.

Boggy marshes, rare; chiefly found in Scotland. Cheshire and Anglesea. *Fl.* May. ♃. — 1—2 ft. high. *Leaves* slender, their margins involute, filamentous at their bases near the roots.

58. C. *hírta* L. (*hairy Carex*); hairy, sheaths elongated nearly equal to the flower-stalks, bracteas long foliaceous, fertile spikes short cylindrical distant the scales cuspidate, fruit hairy ovate with a long beak. *E. Bot.* t. 685; *Ed. Cat.* p. 3.

Wet pastures and woods, frequent. *Fl.* May, June. ♃. — 1—2 feet high, more or less hairy in every part. Mr. Turner finds a *var.* in Yorkshire, with the lower part of the *fertile spike* compound.

** *Fruit glabrous.*

59. C. *ampullácea* Gooden. (*slender-beaked Bottle Carex*); sheaths none, bracteas foliaceous, fertile spikes cylindrical long nearly erect, scales lanceolate, fruit crowded subglobose inflated setaceo-rostrate slightly bifid at the point. *E. Bot.* t. 780; *Ed. Cat.* p. 3.

Bogs and marshes; more abundant in Scotland than in England. *Fl.* June. ♃. — Differs from *C. vesicaria* in the smooth and nearly rounded *stem*, in the channelled glaucous *leaves*, and in the *fruit* which is brownish and not half so large, with a narrower *beak* and different shape.

60. C. *vesicária* L. (*short-spiked Bladder Carex*); sheaths none, bracteas foliaceous long, fertile spikes cylindrical slightly drooping, scales lanceolate, fruit broadly ovate inflated subulato-rostrate bifid at the point. *E. Bot.* t. 779; *Ed. Cat.* p. 3.

Bogs and marshes; apparently most frequent in the north. *Fl.* May, June. ♃. — 1½—2 feet high. *Leaves* rather broad. *Stems* acute, angular. *Fruit* tawny, very large, shining, much inflated.

61. C. **hordeifórmis* Wahl. (*Barley Carex*); sterile spikes 2 upper one on a long peduncle the lower one bracteated, fertile 3 oblong-cylindrical upper ones approximate insertedly-the lower one remote short exsertedly-pedunculated, fruits large broadly ovate and winged acuminate beaked bifid rough with hairs plano-convex ciliato-serrate nerved scarcely twice as long as the broadly ovate hispid-mucronate or obtuse muticous scale scariose at the margin. *Boott: Ed. Cat.* p. 3.

Small valley about 3 miles west of Panmure, Forfar, Scotland: *Mr. T. Drummond. Fl.* June. ♃. — Having seen authentic specimens of *C. secalina*, with which this has been united in the 4th ed. of *Br. Flora*, Dr. Boott is now of opinion that the 2 are really distinct. *C. hordeiformis* is known by the large size of the perigonium, it being scabrous, plano-convex, with a large trigonous achenium; while *C. secalina* has a much smaller compressed glabrous fruit, and with often more numerous and sometimes compound female spikes: *Boott.*

62. C. *paludósa* Gooden. (*lesser common Carex*); sheaths none, bracteas very long foliaceous, calyx of the sterile spikes obtuse, fertile spikes cylindrical obtuse, fruit oblong-ovate acute bifid at the point striated. *E. Bot.* t. 807; *Ed. Cat.* p. 3. C. acuta *Curt.*

Banks of rivers and ditches, common. *Fl.* May. ♃. — Two feet or more high. *Leaves* very broad, keeled, rough.

63. C. *ripária* Curt. (*great common Carex*); sheaths none, bracteas very long foliaceous, scales of the sterile spikes acuminated, fertile spikes scarcely pedunculated broadly cylindrical acute, fruit oblong-ovate striated subacuminated deeply bifid at the point. *E. Bot.* t. 579; *Ed. Cat.* p. 3. C. acuta *Huds.*

Sides of ditches and rivers, common. *Fl.* May. ♃. — Larger than the last, with much broader *leaves* and *spikes*; and well distinguished by the acuminated *scales* of its *sterile spikes*.

CLASS III.

ACOTYLEDONOUS[1], OR CELLULAR PLANTS.

Whole plant with a cellular structure (except in the true Ferns, which have tubular vessels among the cells, and hence approach the 2d Class). There are no real flowers, nothing that can be considered as Stamen and Pistil. The Seeds, or organs of reproduction, are without any distinct embryo, consequently

[1] From α, *without*, and κοτυληδων, a *cotyledon*.

without any cotyledon.—This Class corresponds with the 24th, Cryptogamia, in the Linnæan System.

Ord. I. FILICES[1] *Linn.*
(Tab. X., XI., XII.)

Fructifications generally of one, but sometimes of two kinds, consisting of *seeds* or *sporules*, included in *capsules*, *thecæ*, or *sporangia*, sometimes surrounded with an elastic ring, and these either naked or covered by a membrane, *indusium* or *involucre*; generally collected into clusters (*sori*), or spikes, situated at the back of the fronds, or marginal, terminal, axillary, or radical.—*Perennial* plants, *varied in structure, bearing fructification during a great part of the year. In most, as in the true Ferns, the leaves are connate with the stem, so as to constitute fronds; in others, the* leaves *are distinct, as in* Lycopodium, *which in general appearance comes nearest to the Mosses.*

Subord. I. Polypodiaceæ. (Gen. 1—13.)
(Tab. X. f. 1—10., and Tab. XI. f. 1—3.)

Capsules dorsal or marginal, annulate, opening transversely and irregularly. (*True Ferns.*)

1. Céterach *Willd.* Ceterach.
(Tab. X. f. 1.)

Sori oblong or linear, straight, scattered, covered (like the whole of the back of the frond) with chaffy scales. *Involucre* none.—Name: supposed to be the *Chetherak* of the Arabians.

1. C. *Officinárum* Willd. (*common Ceterach*); fronds pinnatifid covered beneath with imbricated chaffy scales, segments ovate obtuse, scales entire. *Ed. Cat.* p. 15. Grammitis Ceterach *Sw.: Br. Fl* ed. 4. p. 382. Scolopendrium, *E. Bot.* t. 1244. Asplenium *L.*

Rocks and walls, most abundant in limestone countries, and the south of England and Ireland: rare in Scotland. Near Perth and Paisley. Kilfinnan, Argyleshire: *Mr. S. Murray.*—*Mr. W. Wilson* finds evident traces of an involucre on the lower side of the sorus, viz. "a narrow membrane fringed with the same chaffy scales, which cover the back of the frond."

[1] The *Filices* are here considered, with Linnæus and Smith, in the more extended sense of the word, and include the true *Ferns*—no less readily distinguished by their general appearance than by the presence of an elastic ring to the capsule (Tab. x. and Tab. xi. f. 1—3.),—the *Osmundaceæ* (Tab. xi. f. 4—6.), the *Lycopodiaceæ* (Tab. xii. f. 1.); *Marsileaceæ* (Tab. xii. f. 2, 3.), and *Equisetaceæ* (Tab. xii. f. 4.); groups, or sub-orders, which are very distinct the one from another, and easily recognised. However difficult the study of the Cryptogamia, or Acotyledonous plants in general, may be considered by the novice in botany, he will find, by the assistance of the figures here given, and the characters of the sub-orders and genera, that the difficulties are as easily mastered as those attending the investigation of the flowering plants.

2. Polypódium *Linn.* Polypody.
(Tab. X. f. 2.)

Sori roundish. *Involucre* 0.—Named from πολυ, *many*, and πους, ποδος, a *foot*; from the numerous *roots*, or *segments* of the *fronds*.

1. P. *vulgáre* L. (*common Polypody*); fronds deeply pinnatifid, the segments linear-lanceolate obtuse crenulate approximate upper ones gradually smaller. *E. Bot.* t. 1149; *Ed. Cat.* p. 16.—β. γ., *Ed. Cat.* p. 16.

Rocks, walls, trunks of trees, and banks, frequent.—The *lobes* are sometimes deeply serrated and even pinnatifid or laciniated, as it has been found in Ireland and Wales, when it becomes the *P. Cambricum* L.

2. P. *Phegópteris* L. (*pale Mountain Polypody*); fronds bipinnatifid the two lowermost pinnæ standing forward, their segments linear-lanceolate obtuse entire ciliated the lowermost ones adnato-decurrent, veins hairy, sori marginal. *E. Bot.* t. 2224; *Ed. Cat.* p. 16.

Shaded rocky places, in mountainous countries.

3. P. *Dryópteris* L. (*tender three-branched Polypody*); fronds ternate bipinnate, divisions spreading and deflexed, the segments obtuse subcrenated, sori marginal, root-stock filiform. *E. Bot.* t. 616; *Ed. Cat.* p. 16.

Dry stony places, in mountainous countries. Common in Scotland.

4. P. *calcáreum* Sm. (*rigid three-branched Polypody*); "frond 3-branched, branches doubly pinnate erect rather rigid, segments obtuse somewhat crenated, masses of capsules crowded finally confluent." *E. Bot.* t. 1525; *Ed. Cat.* p. 16.

Matlock baths, and other parts of Derbyshire, in broken limestone ground. Cheddar Cliffs. Ingleborough, &c.: *Mr. Wilson.*—This, which I possess from Sir J. E. Smith, is distinguished from the former by its thicker and more rigid texture; its more pectinated subdivision, and by the minute pubescence covering the rachis and midrib of the pinnæ.

3. Woódsia *Br.* Woodsia.
(Tab. X. f. 3.)

Sori scattered, roundish, having, beneath, an *involucre* which is cut at the edge into many, often capillary, segments.—Named in compliment to *Joseph Woods, Esq.*, author of an excellent Monograph of the British Roses, &c.

1. W. *Ilvénsis* Br. (*oblong Woodsia*); fronds lanceolate pinnate, pinnæ deeply pinnatifid with many oblong segments chaffy beneath and on the rachis and stipes. *Hook. in E. Bot. Suppl.* t. 2616; *Ed. Cat.* p. 16. Acrostichum *Linn.*

Mountains, very rare. Wales. Near Caldron spout, Teesdale. Clova mountains: *Mr. Wilson.*—*Plant* small, 2—3 inches high.

2. W. *hyperbórea* Br. (*round-leaved Woodsia*); fronds lanceolate pinnate, pinnæ ovato-cordate inciso-pinnatifid hairy be-

neath, sori solitary at length confluent. *Hook. Scot.* ii. p. 153; *E. Fl.* v. iv. p. 323; *Ed. Cat.* p. 16. Polypodium hyperboreum *Sw.*: *E. Bot.* t. 2023.

On Snowdon and Ben Lawers. Glen of the Dole, Clova: *Mr. Brand, Mr. Watson.* — About the same size as the last, but quite distinct.

4. Aspídium *Sw.* Shield-fern.
(Tab. X. f. 4.)

Sori roundish, scattered. *Involucre* orbicular, or nearly so. — Name; ασπις, ασπιδος, a *shield*, which its *involucres* resemble, especially in the species of the first division.

* *Involucre orbicular, fixed by the centre, hence peltate.* Aspidium *Br.* (Tab. X. f. 4. *a. b.*)

1. A. *Lonchítis* Sw. (*rough Alpine Shield-fern*); fronds linear-lanceolate pinnate, pinnæ lanceolato-falcate acute ciliato-serrate, the upper base acutely auricled the lower one cuneate, superior pinnæ bearing the fructifications, stipes chaffy. Polypod. *L.*: *E. Bot.* t. 797. Polystichum, *Ed. Cat.* p. 16.

Shady clefts of rocks and under stones, on the high mountains of Wales and Scotland. — A very handsome northern *fern.*

2. A. *lobátum* Sw. (*close-leaved prickly Shield-fern*); fronds oblong-lanceolate bipinnate, pinnules rigid convex ovate sublunate acuminate aristate oblique and cuneated at the base and decurrent, the margins faintly serrated spinulose, with a distinct tooth at the base on the upper side, the one next the main rachis longer than the rest, stipes and rachis more or less chaffy, fructifications confined to the upper half of the fronds. *E. Bot.* t. 1563; *E. Fl.* v. iv. p. 290. Polystichum, *Ed. Cat.* p. 16. A. aculeatum *Willd.*: *Hook. Brit. Fl.* ed. 1. p. 443. — *β. lonchitidoides;* small, the pinnules combined so as to form only a pinnate frond. Filix lonchitidi affinis *Raii Syn.* ed. 3. p. 121. A. aculeatum *β.*, *E. Fl.* v. iv. p. 290.

Moist woods, shady banks, and rocky places.

3. A. *aculeátum* Sw. (*soft prickly Shield-fern*); fronds broadly lanceolate bipinnate, pinnules subrigid somewhat convex slightly petioled ovato-sublunate acuminate or acute aristate obliquely truncate and auricled at the base on the upper side, the one next the main rachis somewhat larger than the rest, the margins distinctly serrated and spinulose, stipes and rachis chaffy, fructifications copious. *E. Bot.* t. 1562 (bad); *E. Fl.* v. iv. p. 290 (excl. syn. var. *β.*). Polystichum, *Ed. Cat.* p. 16.

Woods and hedge-banks in England. Lancashire?: *Mr. W. Wilson.* Abundant in a hedge-bank near Henfield: *Mr. Borrer.*

4. A. *anguláre* Sm. and Willd. (*angular-leaved Shield-fern*); fronds broadly lanceolate bipinnate, pinnules thin and membranaceous plane petioled ovate sublunate obtuse aristate obliquely truncate at the base with a large auricle on the upper

side, the margins deeply serrated spinulose, the lowermost ones often deeply pinnatifid, that next the main rachis scarcely larger than the rest (excepting in var. β.), stipes and rachis very chaffy, fructifications copious. *E. Fl.* v. iv. p. 291; *E. Bot. Suppl.* t. 2776. A. aculeatum β., *Fl. Br.* p. 1122; *Ed. Cat.* p. 16. A. lobatum *Willd.? : Hook. Br. Fl.* ed. 1. 443. — β. subtripinnate, pinnules, especially the lower ones, and the much larger one next the main rachis, distinctly pinnate.

Woods and hedge-banks, frequent in England, as far north as Yorkshire: *Dr. Greville.* N. Wales: *Mr. W. Wilson; Mr. Bowman.* Colin Glen, Belfast: *Mr. T. Drummond.* — β. with the last. — Of this plant I possess specimens from Mr. Wigham, of Norwich, who was so much in the habit of consulting Sir J. E. Smith, when any difficulty occurred in the naming of a species, that I have every reason to believe the present to be the plant so called in *E. Flora.* It is, too, what is generally considered *A. aculeatum* by British botanists, and has hence only been placed in opposition to *A. lobatum* Sm., from which, at first sight, and in essential character, it certainly appears distinct; but after a most careful examination of numerous specimens I am compelled to say that there is a third kind, the *A. aculeatum* of *E. Fl.*, which does partake of the characters of the other two, and which some refer to *A. lobatum*, and others as confidently to *A. aculeatum.* Hence, as it appears to me, they must all be united, or, as Smith has done, they must constitute 3 species. In Scotland the *A. lobatum* is very common, but I am not aware that the present species or variety is ever found there.

** *Involucre orbicular-reniform, fixed by the sinus.* Nephrodium *Rich., Br.* (Tab. X. f. 4. *c. d.*)

5. A. *Oreópteris* Sw. (*Heath Shield-fern*); fronds pinnate, pinnæ lanceolate pinnatifid glabrous resinoso-glandulose beneath, the segments lanceolate obtuse entire, lowermost ones longer, sori marginal. Polypodium *Ehrh.: E. Bot.* t. 1019. Lastræa, *Ed. Cat.* p. 16.

Mountainous countries, in heaths and dry pastures. Abundant in Scotland. — *Involucres* small, indistinct.

6. A. *Thelýpteris* Sw. (*Marsh Shield-fern*); fronds pinnate, pinnæ linear-lanceolate pinnatifid, and, as well as the rachis, slightly pubescent, the segments ovate acute entire, sori marginal contiguous at length confluent. Polypodium *L.: E. Bot.* t. 1018. Lastræa, *Ed. Cat.* p. 16.

Marshy and boggy places. — *Root* creeping.

7. A. *cristátum* Sw. (*crested Shield-fern*); fronds linear-lanceolate pinnate, pinnæ cordate attenuated deeply pinnatifid scarcely again pinnate, segments oblong-ovate obtuse acutely and doubly serrated. *E. Bot.* t. 2125; *Hook. in Fl. Lond.* n. s. t. 113. Lastræa, *Ed. Cat.* p. 16.

Boggy heaths, very rare. Near Holt, Norfolk. Westleton, Suffolk. Caxton Bogs, Notts: *Dr. Howitt.* Fritton, near Yarmouth: *Mr. Wigham* (1837). — A species most distinct from any of the following, even in the outline of its *frond*, which is narrowed below.

8. A. *Filix más* Sw. (*blunt Shield-fern*); fronds bipinnate, pinnules oblong obtuse serrated, sori near the central nerve, stipes and rachis chaffy. *E. Bot.* t. 1458 and t. 1949 (A. cristatum). Lastræa, *Ed. Cat.* p. 16.

Woods and shady banks, frequent. — A beautiful, though very common fern, 3—4 feet high; its *fronds* growing in a circle.

9. A. *rígidum* Sw. (*rigid Shield-fern*); fronds lanceolate bipinnate, pinnules narrow-oblong obtuse slightly pinnatifid, the segments broad and rounded bi-tridentate (without spinulose points to the teeth), stipes and rachis chaffy, involucre persistent very convex reniform entire. *Schkuhr Fil.* t. 38; *Hook. in E. Bot. Suppl.* t. 2724. A. spinulosum γ. *Hook. Br. Fl.* ed. 1. Lastræa, *Ed. Cat.* p. 16.

On Ingleborough, Yorkshire: *Rev. W. T. Bree.* Wharnside, abundant: *Mr. W. Wilson.* — *Frond* 2 feet high and more, dull yellowish-green, pinnæ very numerous closely set of nearly the same width throughout (often widest in the middle), with numerous rounded 2—3-toothed lobes, teeth broad and triangular. *Involucre* slightly glandular on the margin, with a reticulation quite unlike that of *A. spinulosum.* This plant differs from the following in having a *permanent* large convex and rounded involucre, resembling that of *A. F. mas,* covering the mass of capsules at every stage, with an attachment as truly central as that of *A. cristatum.* It agrees also with *F. mas* in the oblique insertion of the pinnæ on the rachis, so that they lie in very different planes; but differs essentially in not having the lower pinnæ gradually diminished; so that the frond in circumscription is like that of *A. cristatum.* In the shape of the pinnules and mode of toothing and subdivision it more resembles some states of *Asplen. Filix fœmina; Mr. Wilson;* to whom I am indebted also for the specific character.)

10. A. *spinulósum* Willd. (*prickly-toothed Shield-fern*); fronds subtripinnate, pinnules oblong distinct inciso-pinnatifid, segments mucronato-serrate, stipes chaffy, involucre toothed evanescent. A. dilatatum *Hook. Scot.* ii. p. 154. Lastræa, *Ed. Cat.* p. 16. — β. γ., *Ed. Cat.* p. 16. — α. fronds triangular-ovate, lower primary pinnæ only once pinnate. A. spinulosum, *E. Bot.* t. 1460; *E. Fl.* v. iv. p. 292. Polypod. spinulosum. *Retz.* — β. fronds triangular-ovate, lower primary pinnæ bipinnate, pinnules often convex. A. dilatatum *Willd.: E. Bot.* t. 1461; *E. Fl.* v. iv. p. 293. A. dumetorum *Sm.: E. Fl.* v. iv. p. 294. Polypodium dilatatum *Hoffm.* — γ. pinnules and segments very unequal in size and in their spinulose serratures (a monstrosity?).

Moist woods, Alder-cars, and shady and rocky places, abundant. — α. most frequent in rocky and subalpine countries. — β. generally in moist woods. — γ. Bingley Wood, near Halifax: *Mr. W. Wilson.* About Norwich: *Mr. R. Wigham.* Glen Falloch, Scotland. — This is an extremely variable plant, it must be confessed; but an attentive observer of nature will not find it difficult to trace the different states passing into each other. The texture of the *frond,* too, is highly variable. It is the most compound of all our British *Aspidia.* In stony places on the Scottish mountains, especially the Breadalbane and Cairngorum ranges, the *frond*

is almost ovate, but with nearly parallel sides, the whole compact in its ramification and loaded with fructifications.

5. Cistópteris *Bernhardi.* Bladder-fern. (Cystea *Sm.*) (Tab. X. f. 5.)

Sori roundish. *Involucre* inserted, by its broad cucullate base, at the under side of the *sorus*, opening by a lengthened free extremity, which points towards the apex of the segment. — Name compounded of κιστη, a *little box*, and πτερις, a *fern*. — I have taken a different view of the structure of the *involucre* from that of Sir J. E. Smith, and I trust a correct one. Its texture is thin and delicate, and altogether widely different from *Aspidium*. Species with the above character exist in N. and S. America, as well as in Europe.

1. C. *dentáta* (*toothed Bladder-fern*); fronds bipinnate, pinnæ ovato-lanceolate, pinnules ovate obtuse bluntly and unequally toothed rarely pinnatifid, rachis winged. — *α.* fronds oblong-lanceolate. Cystea, *E. Fl.* v. iv. p. 300. Aspidium *Sw.* Cyathea, *E. Bot.* t. 1588. Polypodium *Dicks.* — *β.* fronds oblong-ovate. Cystea angustata, *E. Fl.* v. iv. p. 301. Polypodium Rhæticum *Dicks.* Cyathea fragilis *β. Sm.* Cystopt. fragilis *β.*, *Ed. Cat.*?

North of England and Wales, abundant. Scotland: *Mr. Dickson.* Ben Lawers. — This is certainly the most common *Cistopteris* in Wales, where it seems to hold the place that *C. fragilis* does in Scotland, and from which it may be distinct. I possess specimens of *Cystea dentata* and *C. angustata* from Mr. Dickson, and I can find no difference; except that the latter is a little broader in the frond than the former, and perhaps the pinnules are rather more divided, so as to approach nearer to the following species. This is the same as the *Aspidium tenue* of American botanists.

2. C. *frágilis* Bernh. (*brittle Bladder-Fern*); fronds bipinnate, pinnæ ovato-lanceolate, pinnules ovato-lanceolate deeply pinnatifid, segments ovate or lanceolate toothed, rachis winged. *Ed. Cat.* p. 15. Cystea, *E. Fl.* v. iv. p. 298. Aspidium *Sw.* Cyathea, *E. Bot.* t. 1587.

Rocks and walls in the mountainous parts of Great Britain. Most abundant in Scotland.—It will be seen that this principally differs from the preceding, in its more divided *pinnæ* and narrower segments.

3. C. *alpina* Desv. (*laciniated Bladder-Fern*); fronds tripinnate, pinnules confluent ovate-oblong pinnatifid rather spreading, the segments broadly and shortly linear obtuse, with 2 or 3 blunt erect teeth, rachis winged. *Ed. Cat.* p. 15. Aspidium *Sw., Willd.* Polypodium *Jacq. Ic.* v. iii. t. 642. (*excellent*). Cystea regia, *E. Fl.* v. iv. p. 302 (*excl. the alpine stations*). Cyathea regia *Forst.: Fl. Br.* p. 1140. C. incisa, *E. Bot.* t. 163.

On a wall (since destroyed) at Low Layton, Essex, plentiful: *Mr. T. F. Forster.* — Having received authentic specimens of the Layton plant from Mr. E. Forster, and compared them with continental ones, and

with figures and descriptions of *Aspidium alpinum* Sw., especially the plates of Jacquin and Schkuhr, I can, without hesitation, pronounce them to be identical.[1]

6. Asplénium *Linn.* Spleenwort. (Tab. X. f. 6.)

Sori oblong or linear. *Involucres* of the same shape, arising from the lateral veins and opening on one side longitudinally towards the central nerve or midrib. — Name: α, *out*, and σπλην, the *spleen*, the plant having been supposed useful in removing obstructions of the viscera.

1. A. *septentrionále* Hull (*forked Spleenwort*); fronds bipartite, segments linear acutely 3-toothed at the extremity. *E. Bot.* t. 1007; *Ed. Cat.* p. 15. Acrostichum *L.*

Clefts of rocks, in mountainous parts of the north. Caernarvonshire. Near Llyn-y-Cwn, N. Wales: *Mr. W. Wilson.* On Ingleborough and at Ambleside. Arthur's seat, Edinburgh, plentiful. Stenton rock, Dunkeld.

2. A. *alternifólium* Wulf. (*alternate-leaved Spleenwort*); fronds pinnate, pinnæ alternate lanceolato-cuneate toothed at the apex lower ones trifid and toothed, involucre entire. *E. Bot.* t. 2258; *Ed. Cat.* p. 15. A. Germanicum *Willd.*

Rocks, Scotland, very rare. Near Kelso, *Mr. Dickson;* and near Perth, *Mr. Bishop, Dr. M'Nab;* 3 m. from Dunfermline, *Dr. A. Dewar.*

3. A. *Trichómanes* L. (*common Wall Spleenwort*); fronds pinnate, pinnæ roundish-oblong obtuse crenated truncato-cuneate at the base (stipes and rachis black). *E. Bot.* t. 576; *Ed. Cat.* p. 15.

Rocks and walls, common.

4. A. *víride* Huds. (*green Spleenwort*); fronds pinnated, pinnæ roundish-ovate obtusely serrated cuneate at the base (rachis green). *E. Bot.* t. 2257; *Ed. Cat.* p. 15.

Moist rocks, N. of England, Wales, and Scotland. Frequent in the Highlands.

5. A. *marínum* L. (*Sea Spleenwort*); fronds pinnate, pinnæ oblong obtuse inciso-serrate, the superior base rounded and subauriculated the inferior one truncated. *E. Bot.* t. 392; *Ed. Cat.* p. 15.

In clefts and caves of rocks on the sea-coast; not unfrequent, especially in the north.

6. A. *Rúta murária* L. (*Wall-rue Spleenwort*); fronds bipinnate especially below, pinnules obovato-cuneate lobed or

[1] Mr. D. Don, *Linn. Trans.* v. xiii. p. 437, observes that he cannot subscribe to this opinion. I can only say that I have again made the comparison; and my specimens from the wall at Layton, given me by Mr. Forster and Mr. Turner, and cultivated ones from Mr. Bree, are precisely the *C. alpina* of continental botanists.

bluntly toothed, involucre jagged at the margin. *E. Bot.* t. 150; *Ed. Cat.* p. 15.

Walls and fissures of rocks, frequent.

7. A. *lanceolátum* Huds. (*green lanceolate Spleenwort*); fronds lanceolate and bipinnate, pinnules obovate attenuated at the base deeply and sharply serrated those of the lower pinnæ somewhat lobed, principal rachis not winged, sori at length confluent. *E. Bot.* t. 240; *Ed. Cat.* p. 15.

Rocks, very rare; in the south of England. Jersey, Cornwall, Tunbridge; on Adderbury Church, Oxfordshire (no longer found there: *Mr. T. Beesley*). Barmouth: *Mr. Wilson.* Stapleton, Bristol: *Mr. Stephens.* — Allied to the following, but distinguishable by the above-mentioned characters.

8. A. *Adiántum nígrum* L. (*black-stalked Spleenwort*); fronds ovate or deltoid tripinnate below, pinnules ovato-lanceolate inciso-pinnatifid toothed, principal rachis winged, sori at length confluent. *E. Bot.* t. 1950; *Ed. Cat.* p. 15.

Banks and fissures of rocks, common. — *Stipes* purplish-black, as in the preceding species. A *var.*, with linear pinnules, is found by Mr. W. Wilson in Ireland; and at Mucruss, by Mr. Mackay.

9. A. *Fílix fœmina* Bernh. (*short-fruited Spleenwort*); fronds broadly lanceolate bipinnate, pinnules linear-oblong acute often drooping inciso-serrate, serratures bi-tridentate acute, lower one at the upper margin large auricled, sori oblong at length arched at the base. Aspidium, *Sw.: E. Bot.* t. 1459 (*not good*).—β. smaller. Aspidium irriguum, *E. Bot.* t. 2199. Athyrium, *Ed. Cat.* p. 15. β., *Ed. Cat.* p. 15.

Moist shady places, abundant. — The *sori* are shorter than in other *Asplenia*, and the species is perhaps correctly referred by Presl to *Athyrium* Roth; the same genus as *Allantodia* Br.

10. A. *fontánum* Br. (*smooth Rock Spleenwort*); fronds linear-lanceolate bipinnate, pinnules obovato-cuneate (small) with few large deep and sharp teeth, principal and partial rachis winged throughout. Aspidium *Sw.: E. Bot.* t. 2024. A. Halleri *Willd.* Athyrium, *Ed. Cat.* p. 15.

Walls and rocks, very rare. On Amersham or Agmondesham church, Bucks. Stony-place, Wybourn, Westmoreland; or Wiborn, Cumberland: *Hudson.* — A very distinct and handsome little species.

7. Scolopéndrium *Sm.* Hart's-Tongue. (Tab. X. f. 7.)

Sori linear, transverse, on lateral nerves. *Involucre* double, occupying both sides of the sorus, opening, as it were, by a longitudinal suture. — Named from the lines of fructification resembling the feet of a *Scolopendra.*

1. S. *vulgáre* Sym (*common Hart's-tongue*); fronds simple oblong-ligulate acute heart-shaped at the base, stipes scaly.

E. Bot. t. 1150; *Ed. Cat.* p. 16. S. officinarum *Sw.* Asplenium Scolopendrium *L.*

Shady banks, cold and damp situations.—In the moat at Kenilworth Castle I have gathered this handsome fern more than 2 feet long.

8. Ptéris *Linn.* Brake.
(Tab. X. f. 8.)

Sori continuous, linear, marginal. *Involucres* formed of the inflexed margin of the frond, frequently dilated into a membrane, opening internally. — Name: πτερις, in Greek, a *fern;* from πτερυξ, a *plume,* or *feather.*

1. P. *aquilina* L. (*common Brake*); fronds tripartite, branches bipinnate, pinnules linear-lanceolate superior undivided inferior pinnatifid, the segments oblong obtuse. *E. Bot.* t. 1679; *Ed. Cat.* p. 16.

Woods, heaths, and stony or sandy soils; abundant. This is the favourite haunt of the deer: —

"The wild buck bells (bellows) from ferny *brake.*"

It is employed for thatching houses, and as litter for cattle. The ashes are useful in the manufacture of soap and glass. Its astringent quality has recommended it for dressing and preparing kid and chamois leather, and the people in Scotland employ it as a vermifuge.

9. Cryptográmma *Br.* Rock-brake.
(Tab. X. f. 9.)

Sori at length confluent and marginal. *Involucre* formed by the revolute margins of the pinnules which in a young state meet at the back: *partial* none.—Name: κρυπτος, *concealed,* and γραμμη, a *line;* from the concealed lines of capsules.

1. C. *crispa* Br. (*curled Rock-brake*); sterile fronds bipinnate, pinnules bi-tripinnatifid, segments linear-oblong often bidentate at the extremity, fertile fronds bipinnate tripinnate below, pinnules linear oblong rather obtuse entire narrow at the base. — Pteris crispa *L.: E. Bot.* t. 1160. Allosorus *Kaulf.: Ed. Cat.* p. 15.

Among loose stones in mountainous countries, in the north: more abundant in the north-west of England than in Scotland. — A very elegant Fern, properly distinguished by Mr. Brown from *Pteris,* differing as it does in habit, even more than in generic character.

10. Bléchnum *Linn.* Hard-fern.
(Tab. X. f. 10.)

Sori linear, longitudinal, contiguous, parallel one on each side of the rib. *Involucre* continuous, opening interiorly. — Name: βληχνον, another Greek name for a *fern.*

1. B. *boréale* Sw. (*Northern Hard-Fern*); sterile fronds pectinato-pinnatifid the segments lanceolate rather obtuse, fer-

tile fronds pinnate, pinnæ linear acuminate. *E. Bot.* t. 1159. Lomaria Spicant, *Ed. Cat.* p. 16.

Woods and heaths, abundant; especially in a poor light soil.—Mr. Brown (*Prodr.* p. 152) suggested that this plant might probably be referred to *Lomaria* (his *Stegania*), with which indeed it entirely agrees in habit, and other botanists have unhesitatingly placed it there. But if the young fertile fronds be examined, it will be evident that the involucre is by no means *marginal;* for there is a considerable space of frond between it and the margin.

11. Adiántum *Linn.* Maiden-hair. (Tab. XI. f. 1.)

Sori oblong or roundish. *Involucres* membranaceous, arising from distinct portions of the margin of the frond, turned in, opening interiorly.—Name: αδιαντος, that which is of a *dry nature.*

1. A. *Capillus Véneris* L. (*true Maiden-hair*); frond bipinnate, pinnules thin membranaceous obovato-cuneate inciso-sublobate, segments of the fertile pinnules terminated by a linear-oblong sorus sterile ones serrated. *E. Bot.* t. 320; *Ed. Cat.* p. 15.

Moist rocks and walls, especially near the sea; rare. Near St. Ives. Barry island and Port Kirig, Glamorgan. Ilfracombe. South isles of Arran, Galway, Ireland. Between Douglas and Peel, Isle of Man: *Mr. Clark.* By the Carron, Kincardineshire.— A most delicate and graceful fern, very abundant in the south of Europe, where I have seen it lining the inside of wells, as it does the basin of the fountain at Vaucluse, with a tapestry of the tenderest green.

12. Trichómanes *Linn.* Bristle-fern. (Tab. XI. f. 2.)

Sori marginal. *Capsules* upon an elongated receptacle, within a cylindrical, or suburceolate, monophyllous *involucre,* which is of the same texture as the frond, opening above.—Name θριξ, τριχος, a *hair,* and μανια, *excess;* from the numerous hair-like, exserted *receptacles* of the *sori.*

1. T. *brevisétum* Br. (*short-styled Bristle-fern*); fronds 3—4-pinnatifid glabrous, segments linear entire or bifid obtuse, involucres solitary in the axils of the upper segments margined cylindrical, the mouth scarcely 2-lipped shorter than the receptacle. T. Europæum *Sm. in. Rees' Cycl.* T. alatum *Hook. in Fl. Lond.* n. s. t. 53 (not *Willd.*). T. pyxidiferum *Huds.* T. speciosum *Willd.: Ed. Cat.* p. 16. Hymenophyllum alatum, *E. Bot.* t. 1417. Hymenophyllum Tunbridgense β., *Fl. Brit.*

Wet rocks in mountainous countries, rare. Near Bingley, Yorkshire. Powerscourt, and near the cascade at the foot of Turk mountain, Killarney. Hermitage Glen, Wicklow.— This rare and beautiful *Fern,* together with the species of the following genus, have a habit very different from the rest of our ferns, and belong to a group which abounds in the tropics. Their *fronds* are membranous and elegantly reticulated;

and their depressed sessile *capsules* have jointed *rings* which completely surround them transversely, and they are fixed at a distance from the ring to the *receptacle.*

13. Hymenophýllum *Sm.* Filmy-fern. (Tab. XI. f. 3.)

Sori marginal. *Capsules* upon a narrow receptacle, within a 2-valved *involucre* which is of the same texture as the frond, opening above. — Named from ὑμη, a *membrane*, and φυλλον, a *leaf;* an admirably characteristic appellation.

1. H. *Tunbridgénse* Sm. (*Tunbridge Filmy-fern*); fronds tender pinnate, pinnæ distichous vertical pinnatifid the segments linear undivided or bifid and as well as the axillary solitary suborbicular compressed involucre spinuloso-serrate, rachis strongly winged. *E. Bot.* t. 162; *Ed. Cat.* p. 16.

Moist rocks among moss, in mountainous countries. First found at Tunbridge. Abundant in the north-west of England and in Wales and many parts of Ireland. Banks of the Clyde.— Habit tender and delicate. *Pinnæ* pointing in two opposite directions, flat and vertical, on the same plane with the winged *rachis. Involucres* nearly orbicular, slightly swollen at the base, where the cluster of *capsules* is lodged, the rest compressed, especially at the margin of the valves. When dry, there is a degree of elasticity in the plant.

2. H. *Wilsóni* Hook. (*Scottish Filmy-fern*); fronds rigid pinnate, pinnæ recurved subunilateral wedge-shaped and 4—6-lobed, the segments linear undivided or bifid spinuloso-serrate, involucres axillary solitary ovate inflated entire, rachis only slightly margined towards the extremity. *Wils. in E. Bot. Suppl.* t. 2686; *Ed. Cat.* p. 16.

Wet rocks. North of England and Wales. Abundant in the Highlands of Scotland and in many parts of Ireland. High granite rock, near Bodmin, Cornwall: *Miss Rodd.* — More rigid, and with larger reticulations than the last: quite distinct in its mode of growth, for all the *pinnæ* are strongly curved backwards, in a direction contrary to that of the fructification: the *involucre* is totally different, larger, browner, of a more rigid texture, truly ovate, each valve remarkably convex for its whole length, the edges only of the valves being applied to each other, and they are quite entire.

Subord. II. Osmundaceæ. (Gen. 14—16.) (Tab. XI. f. 4, 5, 6.)

Capsules spiked or clustered, regularly 2-valved, without a ring.

Osmundaceæ *and* Ophioglosseæ *Br.*

14. Osmúnda *Linn.* Osmund-royal, *or* Flowering-fern. (Tab. XI. f. 4.)

Capsules subglobose, pedicellate, clustered, striated, half 2-valved. *Involucre* none. — Name, probably given, as Sir J. E.

Smith suggests, in honour of some person. *Osmund*, in Saxon, signifies *domestic peace:* from os, *house*, and mund, *peace.*

1. O. *regális* L. (*common Osmund-royal*); fronds bipinnate, pinnules oblong nearly entire the lower base somewhat auricled, the inferior ones opposite, fertile panicle bipinnate occupying the extremity of the frond. *E. Bot.* t. 209; *Ed. Cat.* p. 16.

Boggy places, wet margins of woods; very frequent in the N. W. of Scotland, and S. of Ireland.—The noblest and most striking of our ferns. Mr. Stewart Murray has measured a tuft of its *fronds* on the banks of the Clyde, which from the base, where they sprung from the ground, were 11½ feet high.

15. Botrýchium *Sw.* Moonwort. (Tab. XI. f. 5.)

Capsules subglobose, sessile, clustered at the margin and on one side of a pinnated rachis, 1-celled, 2-valved, compressed, opening transversely. *Involucre* none.—Name: βοτρυς, a *bunch of grapes;* from the appearance of the branched clusters of capsules.

1. B. *Lunária* Sw. (*common Moonwort*); frond pinnated solitary, pinnæ lunate or subflabelliform crenate. *Ed. Cat.* p. 15. Osmunda *L.: E. Bot.* t. 318.

Dry mountain pastures.—Varieties of this are found, with more than one *frond* upon a stalk and with the *pinnules* laciniated and even pinnatifid. Captain Carmichael communicated specimens to me, which bore *capsules* on the margins of their lower pinnules.

16. Ophioglóssum *Linn.* Adder's-tongue. (Tab. XI. f. 6.)

Capsules 1-celled, 2-valved, opening transversely, connate, forming a compact 2-ranked *spike. Involucre* none.—Name,—οφις, οφιος, a *serpent*, and γλωσσα, a *tongue*, which the spike of fructification somewhat resembles.

1. O. *vulgátum* L. (*common Adder's-tongue*); spike cauline, frond ovate obtuse. *E. Bot.* t. 108; *Ed. Cat.* p. 16.

Moist pastures and in woods.

Subord. III. Lycopodiàceæ. (Gen. 17.) (Tab. XII. f. 1.)

Fructifications sessile, in the axils of leaves or bracteas. Capsules without a ring, 2—3-valved.

17. Lycopódium *Linn.* Club-moss. (Tab. XII. f. 1.)

Capsules 1-celled; some 2-valved, including a fine powdery substance (Tab. XII. f. 1. *c, d, e.*), others 3-valved, containing a

few large *grains* or *seeds* (Tab. XII. f. 1. *f*, *g*, *h*.). — Named from λυκος, a *wolf*, and πους, ποδος, a *foot*, which the branches of some species are supposed to resemble.

1. L. *clavátum* L. (*common Club-moss*); spikes in pairs cylindrical stalked, their scales ovate acuminate eroso-dentate, stem creeping, branches ascending, leaves scattered incurved and hair-pointed. *E. Bot.* t. 224; *Ed. Cat.* p. 16.

Heathy pastures, especially in mountainous countries. — The *seeds*, being inflammable, are used to produce artificial lightning on the stage; and the Poles make a decoction of the plant to cure persons afflicted with that terrible disease, the *plica polonica*. *Stems* many feet long.

2. L. *annótinum* L. (*interrupted Club-moss*); spikes oblong-cylindrical solitary sessile terminal, stem creeping, branches ascending dichotomous, branchlets simple, leaves in about 5 rows linear-lanceolate mucronate serrulate patent. *E. Bot.* t. 1727; *Ed. Cat.* p. 16.

Stony mountains of N. Wales, and in the Highlands of Scotland; but by no means general. Not unfrequent on the Cairngorum range.

3. L. *inundátum* L. (*Marsh Club-moss*); spikes terminal sessile leafy solitary, stem (short) creeping, branches simple few, leaves linear scattered acute curved upwards. *E. Bot.* t. 239; *Ed. Cat.* p. 16.

Moist heathy places; but not very common.

4. L. *selaginoídes* L. (*lesser Alpine Club-moss*); spikes terminal solitary sessile, stem creeping, branches few ascending simple, leaves scattered lanceolate subpatent ciliato-denticulate. *E. Bot.* t. 1148; *Ed. Cat.* p. 16.

Boggy and springy spots, by the sides of mountains in the north; not unfrequent. Sandy coast of Lancashire and Anglesea.

5. L. *alpínum* L. (*Savin-leaved Club-moss*); spikes terminal solitary sessile short cylindrical, stem prostrate, branches dichotomous and fascicled, leaves in 4 rows oblong convex acute appressed. *E. Bot.* t. 234; *Ed. Cat.* p. 16.

On the more elevated mountains of the north, frequent. — It is used in many countries to dye woollen cloth of a yellow colour.

6. L. *Selágo* L. (*Fir Club-moss*); capsules in the axils of the common leaves (not spiked), stem dichotomously branched erect fastigiate, leaves in about 8 rows linear-lanceolate acuminate entire imbricated rigid. *E. Bot.* t. 233; *Ed. Cat.* p. 16.

Heathy and stony soils, most abundant in mountainous countries. — Used in the Highlands, instead of alum, to fix colours in dyeing, also as an emetic or cathartic, but it operates violently. The Swedes employ it to destroy lice on swine and other animals.

SUBORD. IV. MARSILEACEÆ. (Gen. 18, 19.)
(Tab. XII. f. 2. 3.)

Capsules without a ring, within involucres that are near the root of the plant. Aquatics.

18. ISOÉTES *Linn.* Quill-wort.
(Tab. XII. f. 2.)

Involucres formed by the swollen base of the leaves, 1-celled. *Seeds* or sporules of two kinds, inserted upon many filiform receptacles. — Named from ισος, *equal* or *alike*, and ετος, the *year*, or *ever-green.*

1. I. *lacústris* L. (*Europæan Quill-wort*); leaves subulate bluntly 4-angular of 4 longitudinal internally jointed tubes. *E. Bot.* t. 1084; *Hook. in Fl. Lond. N. S.* t. 131; *Ed. Cat.* p. 16.

Bottoms of lakes in the north of England, Wales, and Scotland. — A very singular aquatic; its *fructification* being entirely concealed at the base of the cellular, subulate *leaves*. Mr. W. Wilson finds 2 *vars.* in Wales; the one densely tufted, with slender erect leaves; the other solitary and with broader leaves widely spreading. May not the former be the *I. setacea* of Bosc?

19. PILULÁRIA *Linn.* Pill-wort.
(Tab. XII. f. 3.)

Involucres solitary, nearly sessile, globose, coriaceous, 4-celled; each *cell* containing 2 different kinds of bodies, one a membrane containing many minute grains (f. 3. *g.*); the other a solitary grain or capsule (f. 3. *h.*). — Name; *pilula*, a *little pill*, which its fructifications resemble.

1. P. *globulífera* L. (*creeping Pill-wort*). *E. Bot.* t. 521; *Hook. in Fl. Lond. N. S.* t. 83; *Ed. Cat.* p. 16.

Margins of lakes and pools, and in places that are partially overflowed. — *Stems* creeping, long, and entangled. *Leaves* setaceous, erect, 2 or 3 from one point, 4—5 inches long. *Involucres* at the base of the *leaves*, about the size of small peas, brown, downy on the outside.

SUBORD. V. EQUISETACEÆ. (Gen. 20.)
(Tab. XII. f. 4.)

Fructifications terminal, in spikes or catkins, consisting of peltate, polygonous scales (f. 4. *b.*), *on the underside of which are from* 4—7 *involucres, which open longitudinally, and contain numerous globose bodies, enfolded by* 4 *filaments, clubbed at their extremities* (f. 4. *c. d.*). — *Stems rigid, leafless, jointed, striated, the articulations sheathed at the base.*

20. EQUISÉTUM *Linn.* Horse-tail.
(Tab. XII. f. 4.)

Character of the Genus the same as that of the Order. — Named from *Equus*, a *horse*, and *seta*, a *hair*, or *bristle*; whence the English name *horse-tail.*

* *Fertile stems unbranched, succulent, appearing before the sterile ones, which have whorled branches.*

1. E. *fluviátile* L. (*great Water Horse-tail*); sterile stems with very numerous (about 30) striæ and nearly erect simple branches, stem cylindrical smoothish, sheaths with close small subulate teeth, fertile stems (short) without branches clothed with ample loose sheaths having many subulate teeth. *E. Bot.* t. 2022; *Ed. Cat.* p. 15.

Muddy lakes, sides of rivers and pools, frequent. *Fr.* April. — The largest of all our species, its *sterile stems* or *fronds* being 3—4 feet high.

2. E. *Drummóndii* (*blunt-topped Horse-tail*); frond very obtuse at the extremity, sterile stem especially upwards scabrous with prominent points and about 20 striæ, teeth of the sheath appressed, branches simple patent, fertile stem without branches, its sheaths approximate appressed with subulate teeth. *Hook. Br. Fl.* ed. 1., *and in E. Bot. Suppl.* t. 2777; *Ed. Cat.* p. 15.

Scotland, rare; banks of the Isla and Esk, in Forfarshire, extending up the valleys to their sources: *Mr. T. Drummond.* Near Forfar and by the Caledonian Canal: *Dr. Graham.* Campsie Glen: *Dr. Balfour.* Woodcock Dale, Linlithgowshire: *Mr. W. H. Campbell.* Near Belfast: *Mr. Harvey. Fr.* April. — Allied to the following species, but unquestionably distinct. Its colour is greener and less glaucous; its *stems* rougher, with closely set raised points; its angles and *branches* much more numerous, and the whole *barren frond* is singularly blunt (in its outline) at the extremity, by which it may at once be known from *E. arvense.* The *sheaths*, though paler at the base, have blacker and more prominent ribs upwards, and they are so close as to imbricate each other: their *teeth* also are more numerous, when they separate into the proper number. Professor Link refers our plant to the little known *E. umbrosum*, L. and Willd.; which is possibly correct, but I have seen no authentic specimens to identify the fact.

3. E. *arvénse* L. (*Corn Horse-tail*); frond attenuated upwards, sterile stem slightly scabrous with 12—14 furrows, teeth of the sheath lanceolato-subulate, branches simple erecto-patent, fertile stem without branches, its sheaths remote loose. *E. Bot.* t. 2020; *Ed. Cat.* p. 15.

Corn-fields and road-sides, frequent. *Fr.* April; afterwards the *sterile stems* appear.

** *Fertile stems similar to the sterile ones, simple or branched.*

4. E. *sylváticum* L. (*branched Wood Horse-tail*); sterile and fertile stems with about 12 furrows, branches compound whorled deflexed, sheaths lax with about 6 or 12 long membranaceous obtuse teeth. *E. Bot.* t. 1874; *Ed. Cat.* p. 16.

Moist woods, hedge-banks; abundant in the north. *Fr.* April, May. — A graceful species, less rigid and more herbaceous than any of the following. *Sterile plants* pyramidal in their outline; *fertile ones* abrupt at the top, especially after the fructification has passed away.

5. E. *limósum* L. (*smooth, naked Horse-tail*); stems smooth striated, striæ about 16—18, teeth of the sheaths short rigid distinct, branches nearly erect simple whorled often abortive, catkin terminal upon the stem. *E. Bot.* t. 929; *Ed. Cat.* p. 16.

Marshy, watery places and ditches, frequent. *Fr.* June, July.—Next in size to *E. fluviatile;* agreeing, too, somewhat in habit; but with fewer *angles* and *teeth* and fewer *branches* in a whorl, and these latter often short and imperfect, or wanting; differing, too, by the *catkins* being upon stems that are similar to the barren ones.

6. E. *palústre* L. (*Marsh Horse-tail*); stems furrowed roundish with 7 or 8 angles, branches simple whorled gradually shorter upwards (sometimes abortive), catkin terminal on the stem. *E. Bot.* t. 2021; *Ed. Cat.* p. 16.—*β. alpinum;* much smaller, with 4—5 angles and teeth to the sheaths, upper branches abortive. *Ed. Cat.* p. 16.—*γ. polystachion* Willd.: Raii Syn. p. 131. t. 5. f. 3.

Boggy soils, frequent.—*β.* Boggy places near springs, on the higher parts of the Breadalbane mountains.—*γ.* Camberwell: *G. Graves. Fr.* June, July.

7. E. *elongátum* Willd. (*long-stemmed Horse-tail*); stems very long branched at the base, branches elongated flexuose simple or again irregularly branched towards the apex scabrous furrowed, sheaths with 6—13 narrow subulate teeth, catkins terminal mucronate. *Schlecht. Fil. Prom. B. Sp.* t. 1. f. 1.

Mountain glens, near Belfast: *F. Whitla, Esq. Fr.* July.—The stems are nearly equally rough with the following, but the ramification is very different, as are the teeth of the sheaths.

8. E. *hyemále* L. (*rough Horse-tail*); stems throwing up simple branches only from the base scabrous furrowed, sheaths with about 14 very small obtuse often deciduous teeth (black at the extremity), catkin terminal. *E. Bot.* t. 915; *Ed. Cat.* p. 16.

Boggy woods; principally in the middle and north of England; in Scotland and Ireland. *Fr.* July, Aug.—Most of the *Horse-tails* are more or less rough to the touch, and their cuticle abounds in *silex* or flinty earth, so that they are admirably suited for the polishing of hard woods, ivory, brass, &c. This species, *E. hyemale*, is by far the best kind for such purposes, and is imported largely from Holland under the name of *Dutch Rushes*. In Northumberland, Lightfoot tells us that the dairy-maids employ it to scour and clean their milk-pails.

9. E. *variegátum* Schleich. (*variegated rough Horse-tail*); stems filiform rough branched only at the base with 4—8 furrows, sheaths with white membranaceous lanceolate teeth (black at their base), catkin terminal. *E. Bot.* t. 1987; *Ed. Cat.* p. 16.

Sandy sea-shores. Sands of Barrie. Near Liverpool; and at Mucruss, Ireland, growing in water: *Mr. W. Wilson.* Portmarnock sands, Ireland: *Dr. Taylor. Fr.* July, Aug.—The smallest of our species, usually decumbent, 6—8 inches long, slender. At Mucruss, Mr. Wilson finds this plant growing in water and upright to thrice that size, with a *stem* smoother, about 10-furrowed and more polished in the furrows, and the *sheaths* not so conspicuously nor so constantly furnished with acuminated *teeth* or summits as is usual in the ordinary state of the plant.

Note.—The remainder of the Orders of the Class Cryptogamia are given, with their Genera and Species, in the 5th vol. of "*English Flora*" (or the 2d vol. of the present work).

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TO

THE CLASSES, SUB-CLASSES, NATURAL ORDERS, GENERIC AND SPECIFIC NAMES,

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OF SIR J. E. SMITH'S ENGLISH FLORA AND ENGLISH BOTANY,

OF THE EDINBURGH CATALOGUE OF
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THE END.

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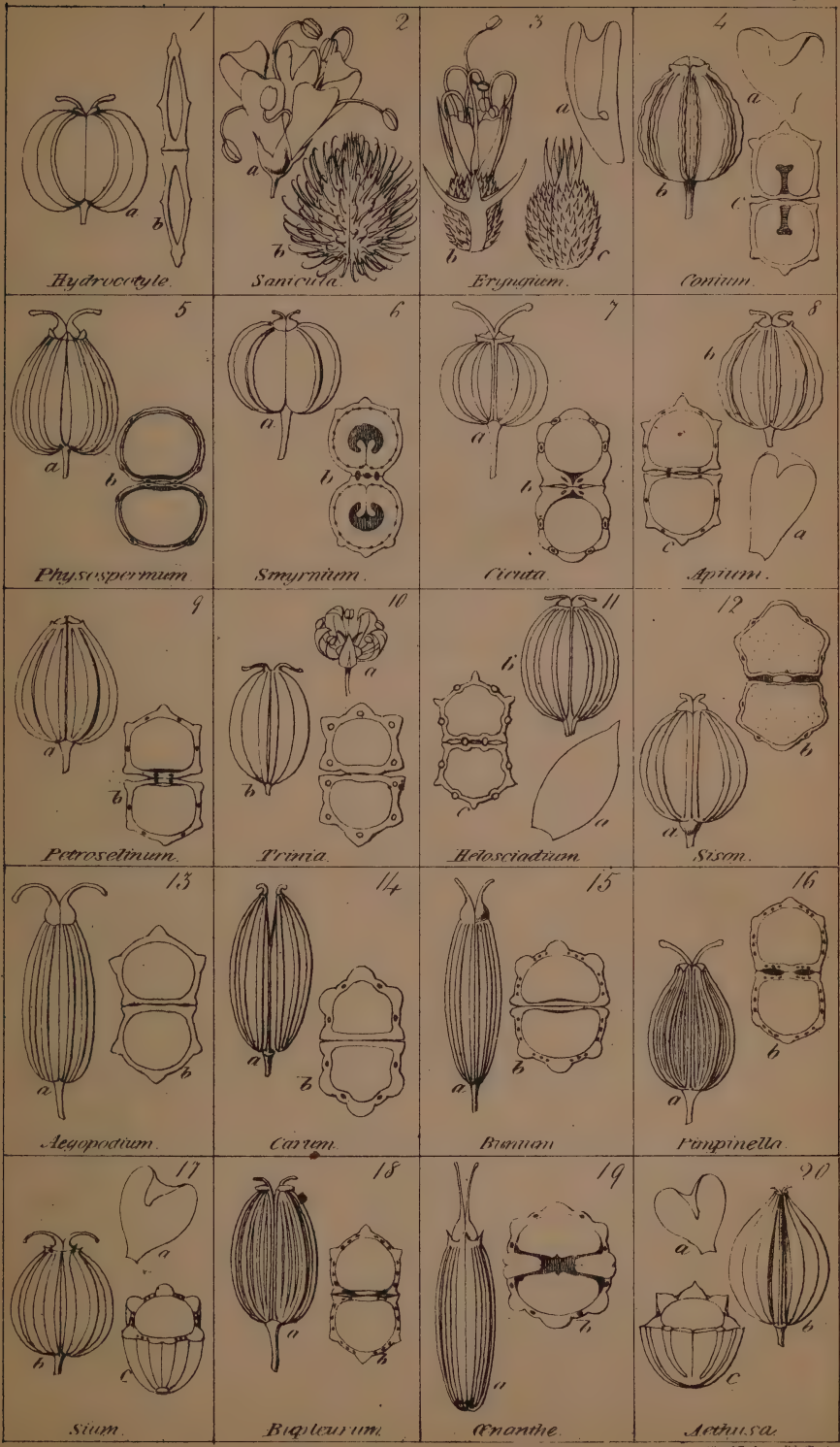
THE BINDER *will observe that these explanations must be placed opposite their respective Plates.*

TAB. I.

UMBELLIFERÆ.

Fig. 1. *a.* Fruit of HYDROCOTYLE.—*b.* Transverse section of the same.
Fig. 2. SANICULA.—*a.* Sterile flower. *b.* Fruit.
Fig. 3. ERYNGIUM.—*a.* Petal. *b.* Flower with a 3-cleft scale at its base. *c.* Fruit.
Fig. 4. CONIUM.—*a.* Petal. *b.* Fruit. *c.* Transverse section of do.
Fig. 5. *a.* Fruit of PHYSOSPERMUM.—*b.* Transverse section.
Fig. 6. *a.* — SMYRNIUM.—*b.* Transverse section.
Fig. 7. *a.* — CICUTA.—*b.* Transverse section.
Fig. 8. APIUM.—*a.* Petal. *b.* Fruit. *c.* Transverse section.
Fig. 9. *a.* Fruit of PETROSELINUM.—*b.* Transverse section.
Fig. 10. TRINIA.—*a.* Sterile fl. *b.* Fruit. *c.* Transverse section.
Fig. 12. *a.* Fruit of SISON.—*b.* Transverse section.
Fig. 13. *a.* — ÆGOPODIUM.—*b.* Transverse section.
Fig. 14. *a.* — CARUM.—*b.* Transverse section.
Fig. 15. *a.* — BUNIUM.—*b.* Transverse section.
Fig. 16. *a.* — PIMPINELLA.—*b.* Transverse section.
Fig. 17. SIUM.—*a.* Petal. *b.* Fruit. *c.* Transverse section of a single carpel.
Fig. 18. *a.* Fruit of BUPLEURUM.—*b.* Transverse section.
Fig. 19. *a.* — ŒNANTHE.—*b.* Transverse section.
Fig. 20. ÆTHUSA.—*a.* Petal. *b.* Fruit. *c.* Transverse section.



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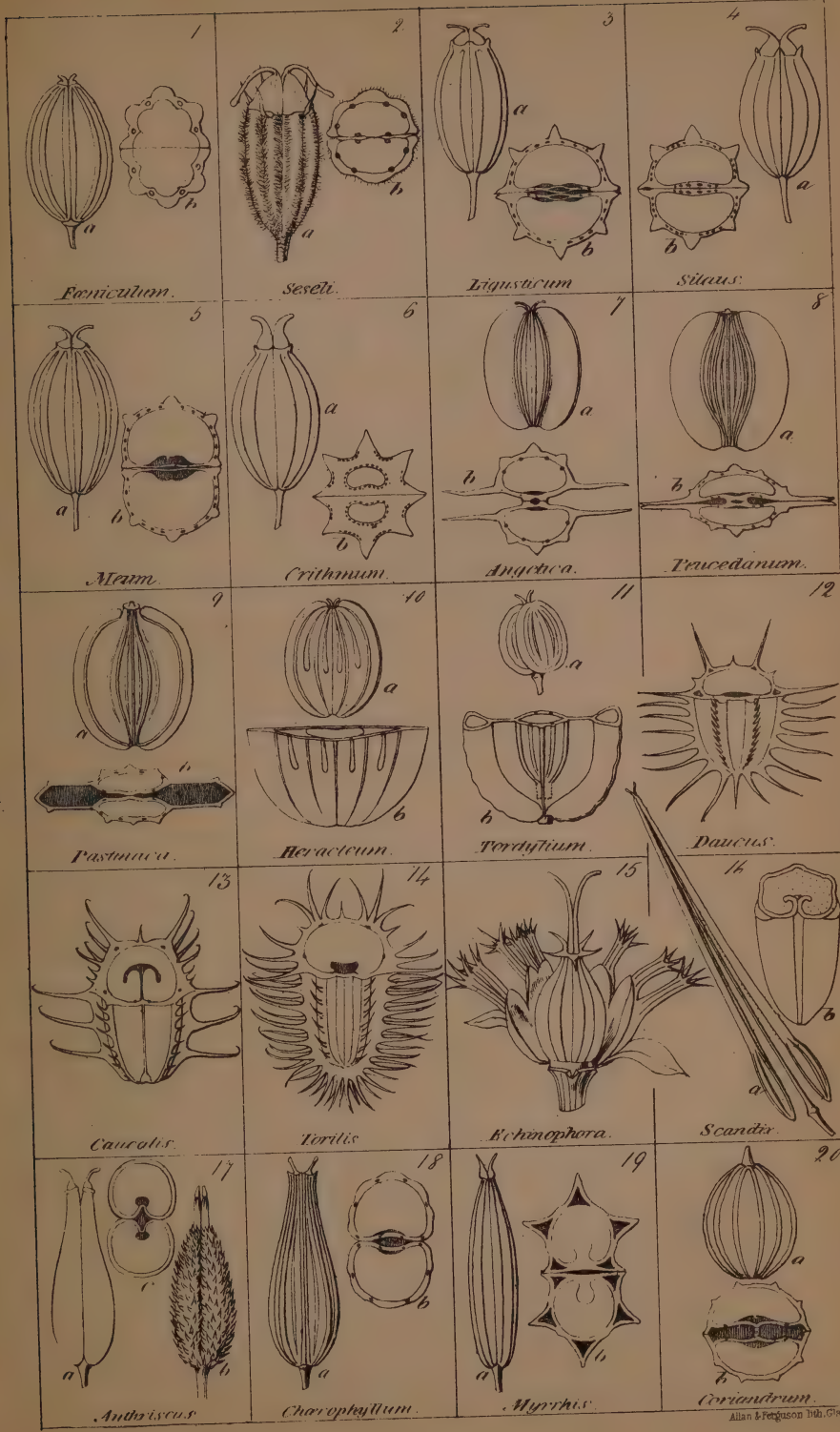
TAB. II.

UMBELLIFERÆ.

Fig. 1. *a.* Fruit of FŒNICULUM.—*b.* Transverse section of the same.
Fig. 2. *a.* — SESELI.—*b.* Transverse section.
Fig. 3. *a.* — LIGUSTICUM.—*b.* Transverse section.
Fig. 4. *a.* — SILAUS.—*b.* Transverse section.
Fig. 5. *a.* — MEUM.—*b.* Transverse section.
Fig. 6. *a.* — CRITHMUM.—*b.* Transverse section.
Fig. 7. *a.* — ANGELICA.—*b.* Transverse section.
Fig. 8. *a.* — PEUCEDANUM.—*b.* Transverse section.
Fig. 9. *a.* — PASTINACA.—*b.* Transverse section.
Fig. 10. *a.* — HERACLEUM.—*b.* Transverse section of a single carpel.
Fig. 11. *a.* — TORDYLIUM.—*b.* Transverse section of a single carpel.
Fig. 12. Transverse section of a single carpel of DAUCUS.
Fig. 13. Do. do. of CAUCALIS.
Fig. 14. Do. do. of TORILIS.
Fig. 15. Fruit of ECHINOPHORA, with its curious prickly receptacle.
Fig. 16. *a.* — SCANDIX.—*b.* Transverse section of a single carpel.
Fig. 17. *a. b.* — ANTHRISCUS.—*c.* Transverse section.
Fig. 18. *a.* — CHÆROPHYLLUM.—*b.* Transverse section.
Fig. 19. *a.* — MYRRHIS.—*b.* Transverse section.
Fig. 20. *a.* — CORIANDRUM.—*b.* Transverse section.



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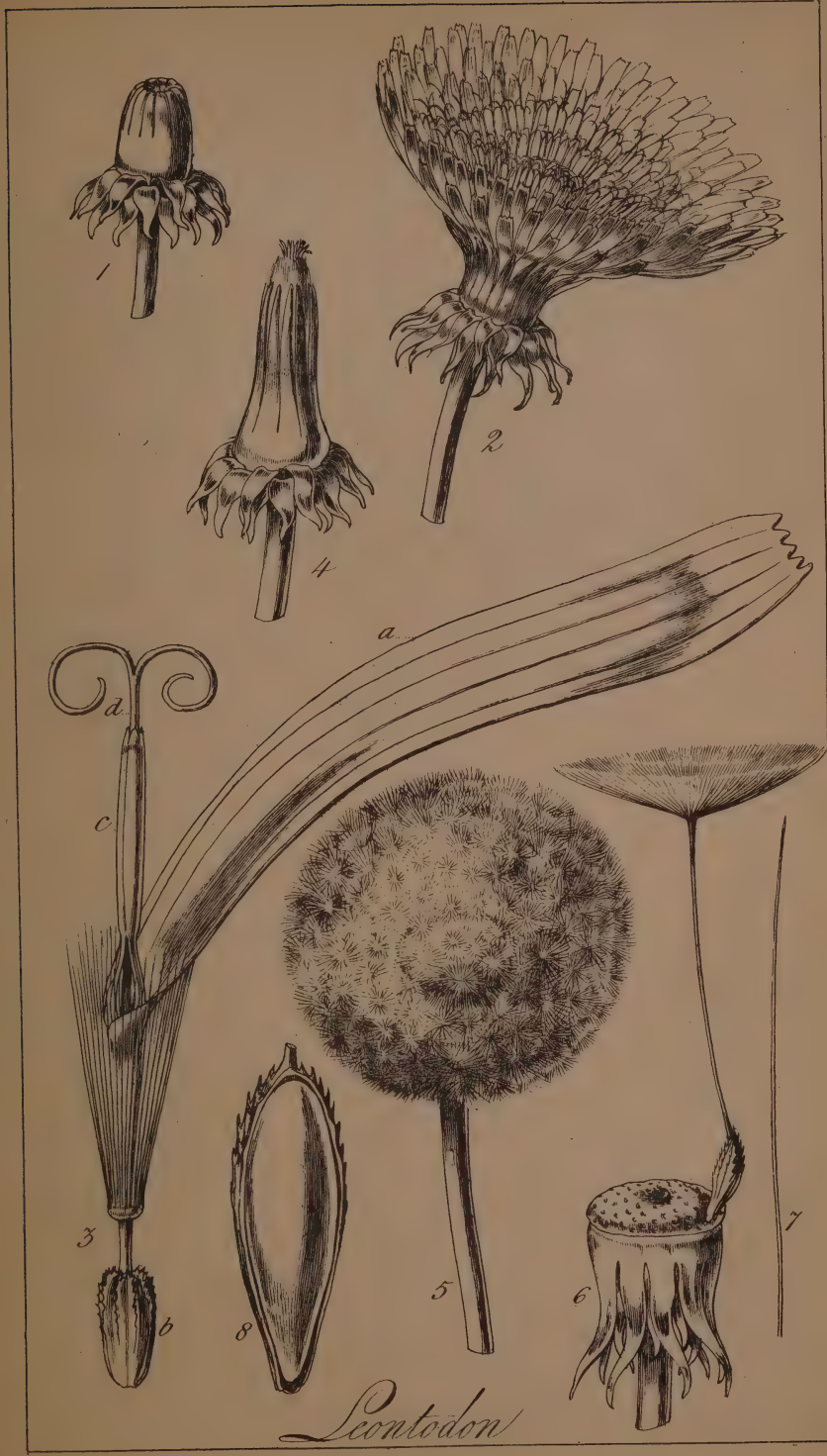
TAB. III.

LEONTODON.

For the explanation of these figures see p. 168., foot-note.



Leontodon

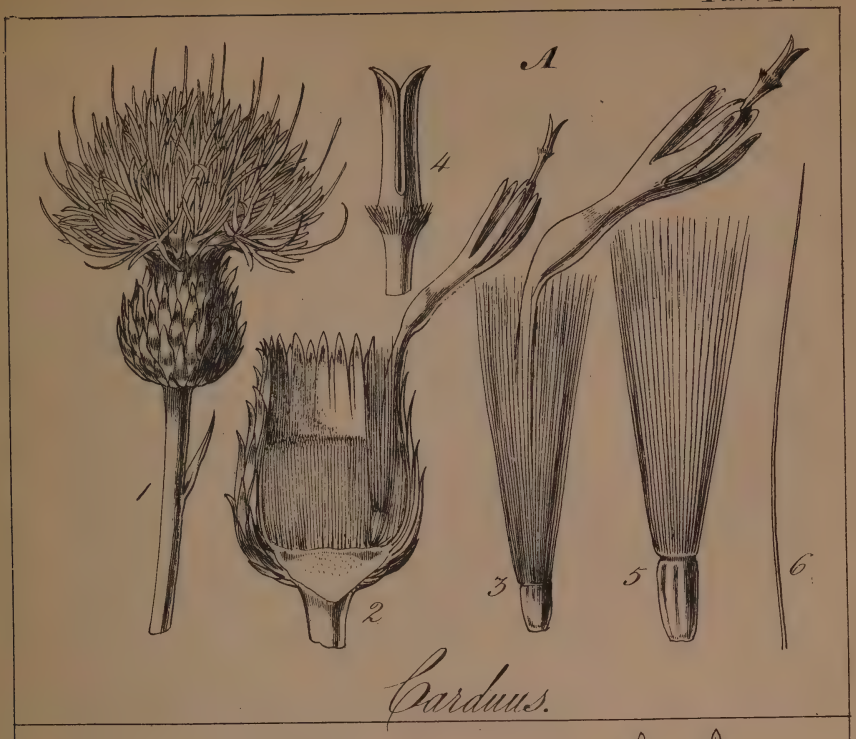
TAB. IV. A.

CARDUUS.

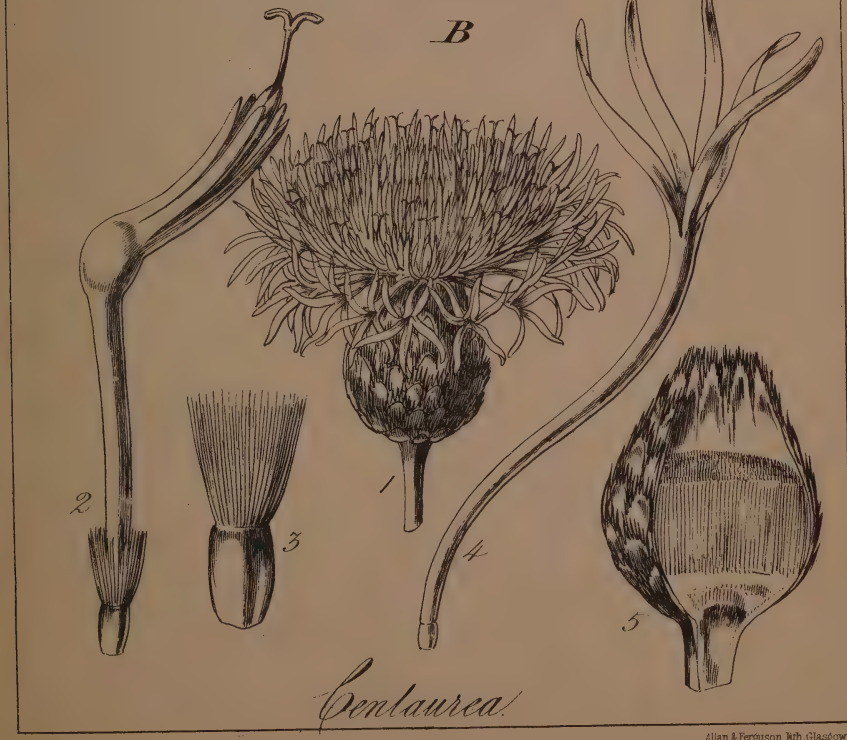
TAB. IV. B.

CENTAUREA.

For the explanation of these figures see p. 179., foot-note.



Carduus.



Centaurea.

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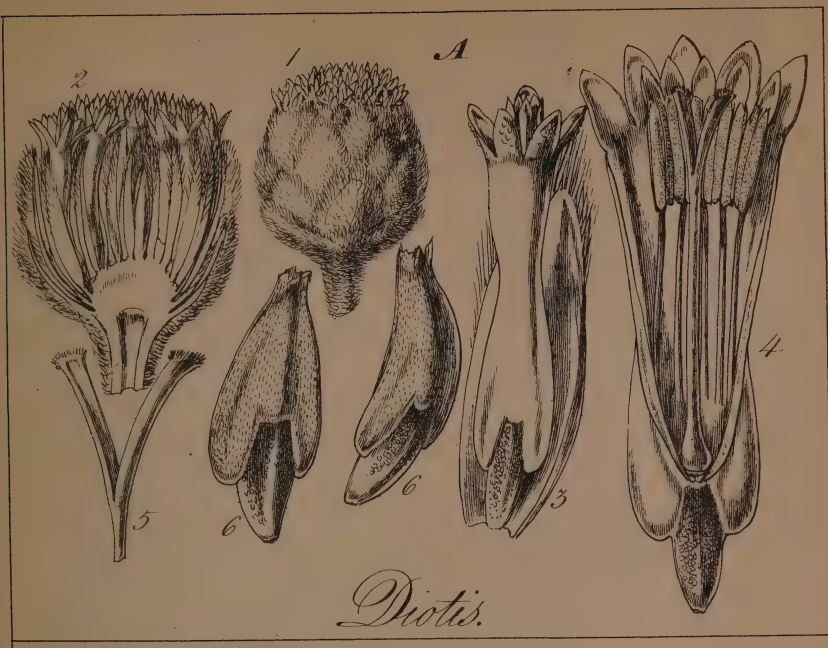
TAB. V. A.

DIOTIS.

TAB. V. B.

BELLIS.

For the explanation of these figures see p. 186., foot-note.



Diotis.

Bellis.

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TAB. VI.

DORONICUM.

Fig. 1. Outer view of the head of flowers, surrounded by the involucre.

Fig. 2. Inner or upper view of a head of flowers: the tubulose flowers or florets of the centre constituting the *disk*; the outer or ligulate florets constituting the *ray*.

Fig. 3. Involucre and receptacle, all the florets being removed.

Fig. 4. Ligulate floret from the ray. *a*. The ligulate or strap-shaped corolla. *b*. The germen or ovary. *c*. The style.

Fig. 5. Tubular floret from the centre. *a*. The tubular corolla. *b*. The stamens. *c*. The style. *d*. The germen. *e*. The pappus.

Doronicum.

TAB. VII.

XANTHIUM.

For the explanation of these figures see p. 201., foot-note.

Xanthium.

Allan & Ferguson lith. Glasgow

TAB. VIII.

GRASSES.

Fig. 1. ANTHOXANTHUM.—*a*. Flower. *b*. The same from which the calyx is removed, showing the outer *awned* corolla. *c*. The inner awnless corolla.

Fig. 2. NARDUS.—*a*. Two-valved corolla, destitute of calyx. *b*. Pistil, with its single style.

Fig. 3. ALOPECURUS.—*a*. Flower with its two-valved calyx. *b*. Corolla of 1 valve with its awn.

Fig. 4. PHALARIS.—*a*. Calyx. *b*. Corolla, with the 2 valves of other imperfect florets.

Fig. 5. AMMOPHILA.—*a*. Flower. *b*. Corolla, with the tuft of hairs at the base.

Fig. 6. PHLEUM.—*a*. Calyx. *b*. Corolla.

Fig. 7. LAGURUS.—*a*. Calyx. *b*. Corolla.

Fig. 8. MILIUM.—*a*. Floret. *b*. Corolla.

Fig. 9. GASTRIDIUM.—Calyx, swollen at the base. *b*. Corolla.

Fig. 10. STIPA.—*a*. Flower with the very long twisted awn terminating the corolla. *b*. Calyx. *c*. Corolla; the long awn being cut away.

Fig. 11. POLYPOGON.—*a*. Calyx. *b*. Corolla.

Fig. 12. CALAMAGROSTIS.—*a*. Flower. *b*. Corolla, surrounded by hairs at the base.

Fig. 13. AGROSTIS.—*a*. Calyx. *b*. Corolla.

Fig. 14. CATABROSA.—*a*. Spikelet. *b*. Corolla.

Fig. 15. AIRA.—*a*. Spikelet. *b*. Corolla.

Fig. 16. MELICA.—*a*. Spikelet. *b*. Two florets from the calyx, with the rudiment of a third floret between them.

Fig. 17. HOLCUS.—*a*. Calyx. *b*. Two florets from the calyx; the upper one with stamens only and awned; the lower one perfect and awnless.

Fig. 18. ARRHENATHERUM.—*a*. Spikelet, with 2 florets, the lowest floret with stamens only, and a long twisted awn; the upper (shown separately at *b*.) perfect, with a short straight awn.

Fig. 19. HIEROCHLOE.—*a*. Calyx. *b*. The 3 florets, of which the two lateral ones have 3 perfect stamens and pistil only; the middle one perfect, diandrous.

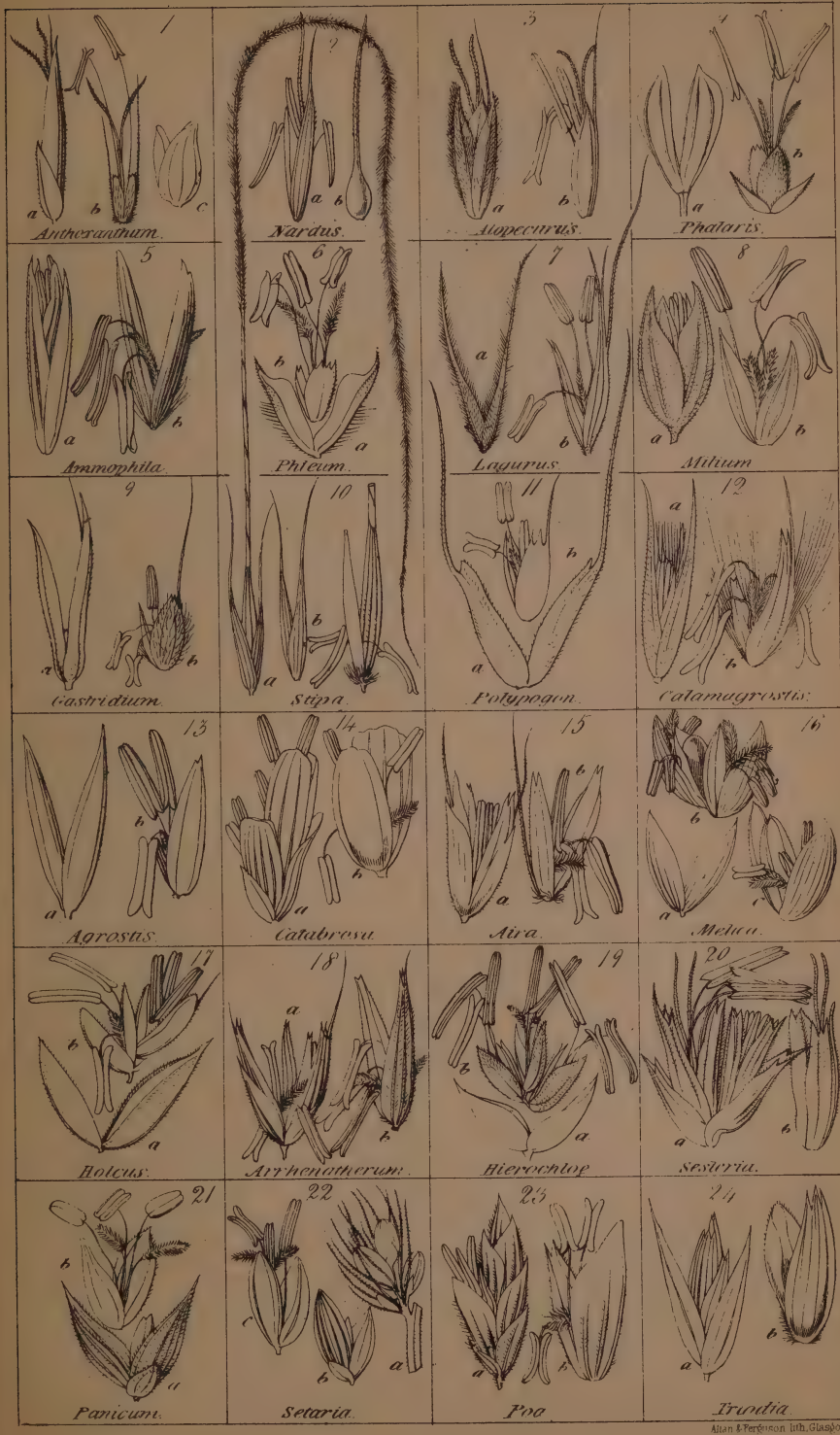
Fig. 20. SESLERIA.—*a*. Spikelet. *b*. Corolla.

Fig. 21. PANICUM.—*a*. Unequal calyx with the neutral floret. *b*. Fertile florets.

Fig. 22. SETARIA.—*a*. Bristly involucre with the spikelets. *b*. Unequal calyx, with the neutral floret. *c*. Perfect floret.

Fig. 23. POA.—*a*. Spikelet. *b*. Floret.

Fig. 24. TRIODIA.—*a*. Spikelet. *b*. Corolla.



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TAB. IX.

GRASSES.

Fig. 25. BRIZA.—*a.* Spikelet. *b.* Floret.

Fig. 26. DACTYLIS.—*a.* Spikelet. *b.* Floret.

Fig. 27. CYNOSURUS.—*a.* Spikelet, with the pectinated involucre. *b.* Floret.

Fig. 28. FESTUCA.—*a.* Spikelet. *b.* Floret.

Fig. 29. BROMUS.—*a.* Spikelet. *b.* Floret.

Fig. 30. AVENA.—*a.* Spikelet. *b.* Floret.

Fig. 31. ARUNDO.—*a.* Spikelet. *b.* Floret.

Fig. 32. ELYMUS.—*a.* Spikelet. *b.* Floret.

Fig. 33. HORDEUM.—*a.* Three calyces, lateral, each with a single floret. *b.* One of the lateral florets. *c.* Central (perfect) one.

Fig. 34. TRITICUM.—*a.* Two spikelets. *b.* Floret.

Fig. 35. BRACHYPODIUM.—*a.* Spikelet. *b.* Floret.

Fig. 36. LOLIUM.—*a.* Spikelet with the single-valved calyx. *b.* Floret.

Fig. 37. ROTTBOLLIA.—*a.* Spikelet on the rachis, with the lateral valves. *b.* Floret.

Fig. 38. KNAPPIA.—*a.* Flower. *b.* Corolla.

Fig. 39. SPARTINA.—*a.* Flower. *b.* Corolla. *c.* Pistil.

Fig. 40. CYNODON.—*a.* Portion of a spike. *b.* Flower.

Fig. 41. DIGITARIA.—*a.* Calyx. *b.* Corolla.

Fig. 42. Pistil of a *grass* with its hypogynous scales. *b.* Portion of the stem of a *grass* with the *ligule* upon the leaf, and the sheath slit on one side. *c—g.* Examples of the inflorescence of *Grasses*. *c.* Spiked panicle as in *Anthoxanthum*. *d.* Panicle as in *Briza minor*. *e.* Compound spike, the spikelets distichous, as in *Lolium perenne*. *f.* Compound spike, the spikelets imbricated on all sides, as in *Triticum cristatum*. *g.* Spike unilateral, or with the flowers pointing one way, as in *Spartina stricta*.

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TAB. X.

FERNS.

Fig. 1. CETERACH.—*a.* Segment of a frond with part of a scale removed. *b.* Capsule.

Fig. 2. POLYPODIUM.—*a.* Segment of a frond. *b.* Portion of do. *c.* Capsule.

Fig. 3. WOODSIA.—*a.* Pinna. *b.* Involucre, most of the capsules removed. *c.* Capsule.

Fig. 4. ASPIDIUM.—*a.* Pinna of first division. *b.* Sorus and involucre. *c.* Pinnæ of second division. *d.* Sorus and involucre.

Fig. 5. CISTOPTERIS.—*a.* Pinna. *b.* Sorus and involucre.

Fig. 6. ASPLENIUM.—*a. b.* Pinnæ.

Fig. 7. SCOLOPENDRIUM.—*a.* Portion of a frond. *b.* Capsule.

Fig. 8. PTERIS.—*a.* Segment of a frond. *b.* Smaller portion of do. *c.* Capsule.

Fig. 9. CRYPTOGRAMMA.—*a.* Portion of a barren frond. *b.* Portion of a fertile do. *c.* Involucre laid open. *d.* Capsule.

Fig. 10. BLECHNUM.—*a.* Segment of a barren frond. *b.* Do. of a fertile one. *c.* Portion of a sorus and involucre. *d.* Capsule.

1
a
b
Ceterach.
2
a
b
c
Polypodium.
3
a
b
c
Woodsia.
4
a
b
d
Aspidium.
5
a
b
Cistopteris.
6
a
b
Asplenium.
7
a
b
Scolopendrium.
8
a
b
c
Pteris.
9
a
b
c
d
Cryptogramma.
10
a
b
c
d
Blechnum.

TAB. XI.

FERNS.

Fig. 1. ADIANTUM.— *a.* Pinna. *b.* Sorus; the involucre laid open, and part of the capsules removed. *c.* Capsule.

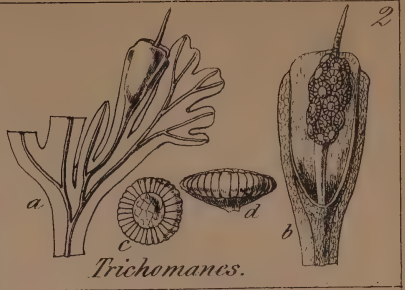
Fig. 2. TRICHOMANES.—*a.* Portion of a frond. *b.* Involucre laid open. *c. d.* Capsules.

Fig. 4. OSMUNDA.— *a.* Portion of a fertile panicle. *b.* Portion of a sterile frond, the lower part fertile. *c. d.* Capsules.

Fig. 5. BOTRYCHIUM.—*a.* Frond with its fructified portion. *b.* Sterile pinna. *c.* Capsules on the rachis. *d.* Single capsule.

Fig. 6. OPHIOGLOSSUM.—*a.* Frond with fructified portion. *b.* Portion of the frond. *c.* Portion of the fertile spike.

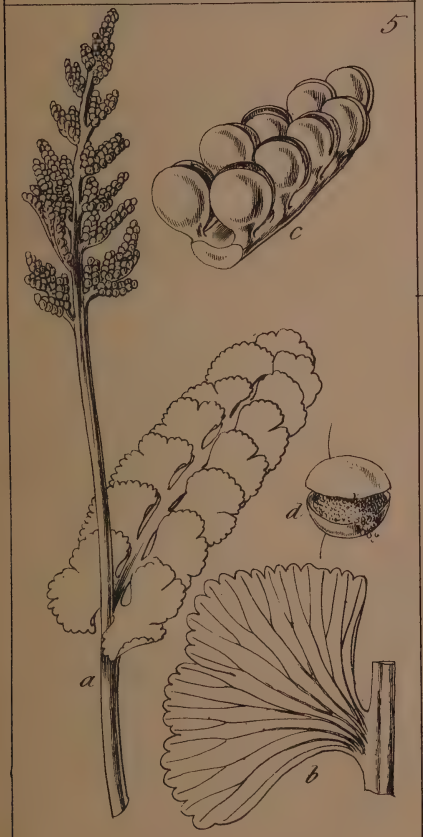
Adiantum.



Trichomanes.

Hymenophyllum.

Osmunda.



Botrychium.

Ophioglossum.

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TAB. XII.

FERNS.

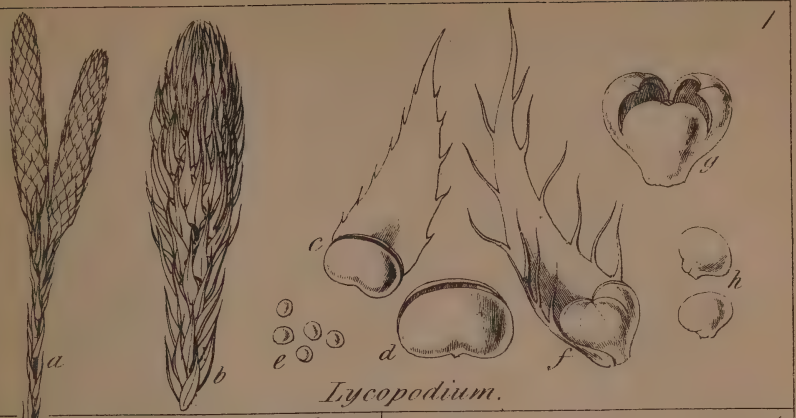
Fig. 1. LYCOPODIUM. — *a.* Fertile portion of a frond. *b.* Spike of another species. *c.* Scale from *a.* with a 2-valved capsule. *d.* The capsule. *e.* The seeds. *f.* Scale from *b.* with a 3-valved capsule. *g.* The capsule. *h.* The grains or seeds.

Fig. 2. ISOETES. — *a. b.* Leaves with fructifications at the base. *c.* Capsule. *d.* The same cut through transversely. *e. g.* Filiform receptacles of seeds of two kinds. *f.* Seeds from *e.*

Fig. 3. PILULARIA. — *a.* Plant. *b. c.* Capsules. *d.* Capsule cut through transversely. *e.* The same cut through vertically. *f.* One of the cells. *g. h.* The two kinds of capsules.

Fig. 4. EQUISETUM. — *a.* Apex of a plant. *b.* Scale with involucres from the spike. *c. d.* Seeds or grains from the involucres with their clavate filaments.

1

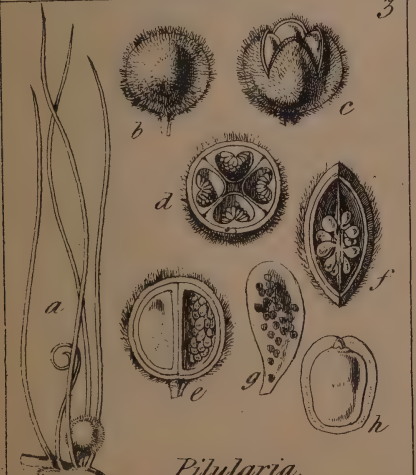


Lycopodium.

2

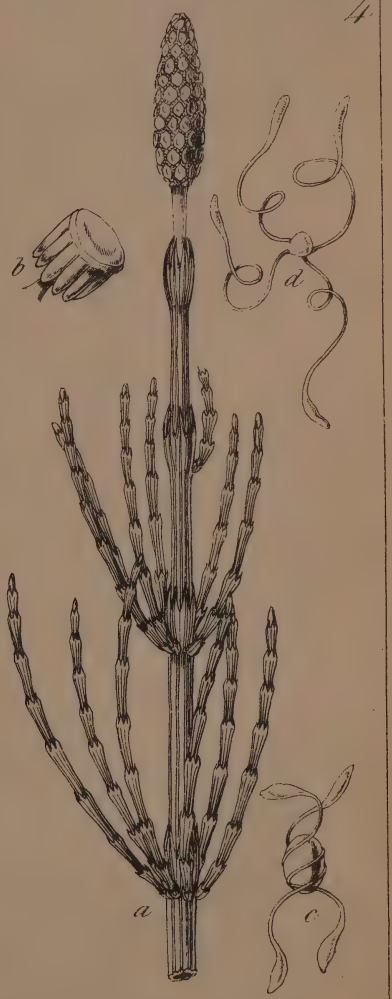
Isoetes.

3



Pilularia.

4



Equisetum.

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